STIC
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Search Report
EIC 2800

STIC Database Tracking Number: 249[illegible]

To: BROOKE PURINTON
Location: JEF-3B15
Art Unit: 2881
Tuesday, August 26, 2008

Case Serial Number: 10/599555

From: JEFFREY HARRISON
Location: EIC2800
JEF-4B71
Phone: (571)272-2511

jeff.harrison@uspto.gov

Search Notes

Attached are the edited search results and the search histories from EAST, Google, Scirus.com, Dialog nonpatent databases, Dialog Scisearch forward-citation database, CAS/STN Chemical Abstracts database, and DOE Information Bridge.

The search histories are included at the end of this file.

I am unsure if I found helpful documents, with or without the mechanism of quantum entanglement.

I recommend that you browse the first half of the edited search results, approximately through page 50 of this file.

If you would like more searching on this case, or if you have questions or comments, please notify me.

sira
Search and Information Resources Administration

269889

EIC 2800
SEARCH REQUEST

STIC Scientific & Technical Information Center

AUG 19 2008

Today's Date

Name Brooke Purinton

AU/Org. 2881 Employee # 85970

Bld.&Rm.# Jef. 813 Phone 0-5384

Priority App. Filing Date 4/13/2004

Case/App. # 10/599555

Format for Search Results

EMAIL ✓ PAPER

If this is an Appeals case, check here ☐

Describe this invention in your own words

Synonyms

Additional Comments

* Please see the search topic as described in the attached search request submitted by the Examiner.

Please submit completed form to your EIC.

STIC USE ONLY

Searcher HARRISON Date Completed 8-26-08

Phone 22511 Sources EAST; Google; Scirus.com; CAS/STN; Dialog DOE Information Bridge

12/07

269889

Jackson, Diane

AUG 19 2008

From: BROOKE PURINTON [brooke.purinton@uspto.gov]
Sent: Monday, August 18, 2008 5:05 PM
To: STIC-EIC2800
Cc: NPL Feedback
Subject: Search Request, Case/Application No.: 10/599555

Requester: **BROOKE PURINTON (P/2881)**
Art Unit: **GROUP ART UNIT 2881**
Employee Number: **85090**
Office Location: **JEF 0B13**
Phone Number: **(571)270-5384**

Case/Application number: **10/599555**
Priority Filing Date: **April 13, 2004**
Format for Search Results: **Email**
Is this a Board of Appeals case? **No, this is not a Board of Appeals case.**
Describe this invention in your own words:
Using entangled photons to irradiate a nuclear isomer (isomer nuclide) and make the half-life time varying.

Synonyms:
Entangled is also quantum entangled, quantum coupling, quantum entanglement, entanglement. Photons can be gamma rays (as claimed) or x-rays or another type.

Additional comments:
Have looked through East wtih Derwent, JPO, EPO, IBM on with class and text searches, have found nothing on google scholar.

Attachment: **No**

nuclear isomer changing half life time varying

VOLUNTARY SEARCH FEEDBACK

Art Unit _____ App./Serial # _____

Relevant prior art found

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest
- ☐ Helped better understand invention
- ☐ Helped better understand state of the art in technology

Types ☐ Foreign Patent(s) ☐ Non-Patent Literature

Relevant prior art not found

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining the patentability or understanding of the invention.

COMMENTS (click below to type)

Questions about the scope or the results of the search?
Contact your EIC searcher or EIC Supervisor.

Please submit completed form to your EIC

12/07

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Today's Date _____

Additional Notes if applicable (please indicate all actions including emails, phone calls, and individuals assisting):

_____

_____

_____

INTERNATIONAL SEARCH REPORT

page 1 of 2

International Application No
PCT/EP2005/051404

A. CLASSIFICATION OF SUBJECT MATTER
G21K1/00

WO/PCT Related Search Report

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G21K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, INSPEC, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	COLLINS C B ET AL: "Accelerated emission of gamma rays from the 31-yr isomer of <178>Hf induced by X-ray irradiation" PHYSICAL REVIEW LETTERS APS USA, vol. 82, no. 4, 25 January 1999 (1999-01-25), pages 695-698, XP002304655 ISSN: 0031-9007 the whole document -/--	1-10

[X] Further documents are listed in the continuation of box C.

[ ] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 December 2005	14/12/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Capostagno, E

page 1 of 2

International Application No
PCT/EP2005/051404

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	COLLINS C B ET AL: "Evidence for the forced gamma emission from the 31-year isomer of hafnium-178" LASER PHYSICS MAIK NAUKA/INTERPERIODICA PUBLISHING RUSSIA, vol. 9, no. 1, February 1999 (1999-02), pages 8-11, XP008038352 ISSN: 1054-660X the whole document	1,2,10
A	COLLINS C B ET AL: "'gamma! emission from the 31-yr isomer of <178>Hf induced by X-ray irradiation" PHYSICAL REVIEW C (NUCLEAR PHYSICS) APS THROUGH AIP USA, vol. 61, no. 5, 2000, pages 054305/1-7, XP002304282 ISSN: 0556-2813 page 61, paragraph 1 - page 62, last paragraph	1,2,9
A	KARAMIAN S A ET AL: "Possible ways for triggering the <179m2>Hf isomer" LASER PHYSICS MAIK NAUKA/INTERPERIODICA PUBLISHING RUSSIA, vol. 14, no. 2, February 2004 (2004-02), pages 166-173, XP008038385 ISSN: 1054-660X the whole document	1,2

page 2 of 2

RÉPUBLIQUE FRANÇAISE

2868869

Related FR Search Report

INPI
INSTITUT NATIONAL DE LA PROPRIETE INDUSTRIELLE

RAPPORT DE RECHERCHE PRÉLIMINAIRE

établi sur la base des dernières revendications déposées avant le commencement de la recherche

N° d'enregistrement national

FA 652701
FR 0403905

DOCUMENTS CONSIDÉRÉS COMME PERTINENTS		Revendication(s) concernée(s)	Classement attribué à l'invention par l'INPI
Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes		
A	COLLINS C B ET AL: "Accelerated emission of gamma rays from the 31-yr isomer of <178>Hf induced by X-ray irradiation" PHYSICAL REVIEW LETTERS APS USA, vol. 82, no. 4, 25 janvier 1999 (1999-01-25), pages 695-698, XP002304655 ISSN: 0031-9007 * le document en entier *	1-5,9	G21G1/00
A	COLLINS C B ET AL: "[gamma] emission from the 31-yr isomer of <178>Hf induced by X-ray irradiation" PHYSICAL REVIEW C (NUCLEAR PHYSICS) APS THROUGH AIP USA, vol. 61, no. 5, 2000, pages 054305/1-7, XP002304282 ISSN: 0556-2813 * page 61, alinéa 1 - page 62, dernier alinéa *	1,2,9	
A	KARAMIAN S A ET AL: "Possible ways for triggering the <179m2>Hf isomer" LASER PHYSICS MAIK NAUKA/INTERPERIODICA PUBLISHING RUSSIA, vol. 14, no. 2, février 2004 (2004-02), pages 166-173, XP008038385 ISSN: 1054-660X * le document en entier *	1,2	DOMAINES TECHNIQUES RECHERCHÉS (Int.Cl.7) G21K
A	COLLINS C B ET AL: "Evidence for the forced gamma emission from the 31-year isomer of hafnium-178" LASER PHYSICS MAIK NAUKA/INTERPERIODICA PUBLISHING RUSSIA, vol. 9, no. 1, février 1999 (1999-02), pages 8-11, XP008038352 ISSN: 1054-660X * le document en entier *	1,2	

Date d'achèvement de la recherche	Examinateur
9 novembre 2004	Capostagno, E

CATÉGORIE DES DOCUMENTS CITÉS

X : particulièrement pertinent à lui seul
Y : particulièrement pertinent en combinaison avec un autre document de la même catégorie
A : arrière-plan technologique
O : divulgation non-écrite
P : document intercalaire

T : théorie ou principe à la base de l'invention
E : document de brevet bénéficiant d'une date antérieure à la date de dépôt et qui n'a été publié qu'à cette date de dépôt ou qu'à une date postérieure.
D : cité dans la demande
L : cité pour d'autres raisons

& : membre de la même famille, document correspondant

2

EPO FORM 1503 12.99 (P04C14)

L145 ANSWER 16 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 1999:259595 HCAPLUS

DN 130:343722

TI The experimental realization and investigation of **the phenomenon of controlling the spontaneous nuclear gamma-decay and the life-time of gamma-excited nuclei**

AU Vysotskii, Vladimir I.; Bugrov, Vladimir P.; Kornilova, Alla A.; Reiman, Sergei I.

CS Radiophysical Faculty, Kiev Shevchenko University, Kiev, 252033, Ukraine

SO Proceedings of the International Conference on the Physics of Nuclear Science and Technology, Hauppauge, N. Y., Oct. 5-8, 1998 (**1998**), Volume 2, 1739-1743 Publisher: American Nuclear Society, La Grange Park, Ill. CODEN: 67MSAZ

DT Conference

LA English

AB The paper discusses the expts. on **controlling the probability** of spontaneous gamma-decay and **life-time** of radioactive and excited nuclei. The phenomenon of gamma-decay controlling was exptl. studied by Mossbauer spectroscopy. Expts. have proved the possibility of **changing the life-time** of radioactive and excited nuclei by surrounding them with screen having resonant **absorption** frequency equal to the transition frequency of radioactive and excited nuclei. For the first time in the expts. with gamma source 119mSn and with **gamma absorber** 119Sn we have discovered the **change** (**increase**) of Mossbauer radiative life-time of excited nucleus by 40 - 80% and total life-time (including non-Mossbauer radiation and electron conversion channels of excited nucleus decay) by 0.4-0.6%. Also for the first time the sign and magnitude of the radiative shift of excited nucleus level 119mSn (nuclear analogy of the electron Lamb shift) by $\Delta\omega 0 \approx -3.1014$ s-1 were detected in these expts.

IT **Gamma ray**
(controlling the spontaneous nuclear **gamma-decay** and the life-**time** of **gamma**-excited nuclei)

IT **Radionuclides**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(controlling the spontaneous nuclear **gamma-decay** and the life-**time** of **gamma**-excited nuclei)

IT **Gamma ray** lasers
(controlling the spontaneous nuclear **gamma-decay** and the life-**time** of **gamma**-excited nuclei in relation to)

IT Mossbauer effect
(in controlling the spontaneous nuclear **gamma-decay** and the life-**time** of **gamma**-excited nuclei)

IT 14314-35-3, **Tin 119**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(controlling the spontaneous **nuclear gamma**-decay of **isomeric**)

L101 ANSWER 2 OF 3 HCAPLUS COPYRIGHT ACS on STN
AN 1998:429932 HCAPLUS
DN 129:141404
OREF 129:28801a,28804a
TI Induced emission of γ radiation from **isomeric nuclei**
AU Olariu, Silviu; Olariu, Agata
CS Institute of Physics and Nuclear Engineering, Atomic and Nuclear Physics Department, Bucharest, 76900, Rom.
SO Physical Review C: Nuclear Physics (**1998**), 58(1), 333-336
CODEN: PRVCAN; ISSN: 0556-2813
PB American Physical Society
DT Journal
LA English
CC 70-1 (Nuclear Phenomena)
AB We study the possibility to **influence the lifetime of nuclear isomeric states with the aid of incident fluxes of photons**. We assume that a **nucleus initially** in an **isomeric** state |i> first **absorbs an incident photon** of energy Eni to reach a higher intermediate state |n> and then the state |n> decays to a lower state |1>. In favorable cases the two-step induced emission rates become equal to the natural isomeric decay rates for incident power densities of the order of 1010 W cm-2.
IT Gamma ray
(induced emission of γ radiation from **isomeric nuclei**)
IT **Nuclear** energy level
(**isomer**; lifetime in relation to induced emission of γ radiation)
IT 13966-26-2, Lead 204, processes 13981-54-9, Am 242, processes 13982-23-5, Zinc 69, processes 14092-99-0, Mn 52, processes 14119-13-2, Mo 93, processes 14119-24-5, Os 191, processes 14133-76-7, Tc 99, processes 14191-71-0, In 115, processes 14265-77-1, Hf 178, processes 14280-38-7, Bi 201, processes 14391-94-7, Sc 44, processes 14683-23-9, Eu 152, processes 14808-44-7, Tc 96, processes 14914-52-4, Zinc 71, processes 14914-67-1, Te 119, processes 14998-63-1, Re 186, processes 15752-86-0, Lead 202, processes 15765-82-9, Rh 102, processes 15765-86-3, Rb 84, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(induced emission of γ radiation from isomeric)

L145 ANSWER 5 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 2004:1033215 HCAPLUS
DN 142:361834
TI Induced **quantum entanglement** of nuclear **metastable** states of 115In
AU **Van Gent, D. L.**
CS Nuclear Science Center, Louisiana State University, Baton Rouge, USA
SO Los Alamos National Laboratory, Preprint Archive, Nuclear Experiment (2004) 1-8, arXiv:nucl-ex/0411047, **24 Nov 2004**
CODEN: LNNEFO
URL:
PB Los Alamos National Laboratory
DT Preprint
LA English
AB Expts. conducted in our laboratory conclusively demonstrated that at least 20% of 115In **metastable** states become **quantum entangled** (QE) during **gamma** photo-excitation processes where a significant fraction of the photo-excitation **gamma** (E > 1.02 MeV) are QE. In addition, it was found that the **half-life** of 115mIn populations in identical photo-excited indium foils **varied** as much as 70% depending on whether the 99.999% purity indium foils were photo-excited with a High Intensity 60Co Source (HICS) or a Varian CLINAC (Compact Linear Accelerator) with average energy 2 MeV and maximum energy 6 MeV Bremsstrahlung photo-excitation quanta. Decay kinetics of 115mIn populations in indium foils demonstrate that these **metastable** states are primarily QE in pairs when photo-excited in the HICS apparatus and at higher orders of **entanglement** of triplets and possibly quadruplets when photo-excited with the CLINAC. It appears that QE **gamma photons** can transfer **quantum entangled** properties to radioactive **metastable** states.
IT **Gamma ray** interactions
Nuclear level excitation
Quantum entanglement
(induced **quantum entanglement** of nuclear **metastable** states of indium-115 during **gamma** photo-excitation processes)
IT **Nuclear energy level**
(**isomer, metastable** state; induced **quantum entanglement** of nuclear **metastable** states of indium-115 during **gamma** photo-excitation processes)
IT 378759-77-4, Indium-115m, properties
RL: PRP (Properties)
(indium-115m; induced **quantum entanglement** of nuclear **metastable** states of indium-115 during **gamma** photo-excitation processes)

L172 ANSWER 9 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 1976:156524 HCAPLUS
DN 84:156524
OREF 84:25395a,25398a
TI Conversion E3 transition from the isomer level of the uranium-235 (73 eV) nucleus
AU Grechukhin, D. P.; Soldatov, A. A.
CS Inst. At. Energ. im. Kurchatova, Moscow, USSR
SO Yadernaya Fizika (**1976**), 23(2), 273-81
CODEN: IDFZA7; ISSN: 0044-0027
DT Journal
LA Russian
CC 70-1 (Nuclear Phenomena)
AB In framework of the relativistic variant of the Thomas-Fermi-Slater method, by means of numerical integration of Dirac's equations, the probabilities of E3-multipole transitions from the 1st excited state Ii = 1/2+ (Ei = 73 eV) to the ground state I2 = 7/2- (E2 = 0) were calculated for electronic orbits 6s1/2, 6p1/2, 6p3/2, 6d3/2, 6d5/2, 5f5/2, and 5f7/2. The obtained probabilities allow interpretation of the observed **change** of the **decay** rate for the **isomer** 235U [15117-96-1] at introduction of U atoms into various media as a consequence of an essential rearrangement of the valent configuration of the atomic shell, or, more precisely, as a consequence of change of occupation nos. for atomic orbits (6d3/2) and (6d5/2). However, it is not clear, whether a small change of occupation nos. can take place for orbits 6p1/2 and 6p3/2. Based on the observed decay rate (λ) of 235Um as 0.026 min-1, matrix elements of the E3 transition were determined for 235U. This element has a scale of a collective transition, estimated by using a model which considers an admixt. of components containing octupole excitations of the core 234U in the states of 235U. The octupole-vibration amplitude of the core 234U, estimated from the probability of the E3 transition of 235U, is in good agreement with quantities of octupole-vibration amplitudes, obtained from data on Coulomb excitation of |3-> levels of 234U.
ST uranium 235 conversion E3 transition; electron internal conversion uranium 235
IT Electron configuration
(electron internal conversion in uranium-235 in relation to)
IT Electron internal conversion
(in uranium-235, atomic electron configuration in relation to)
IT 15117-96-1, properties
RL: PRP (Properties)
(electron internal conversion in)

L172 ANSWER 4 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 2001:633278 HCAPLUS
DN 135:248454
ED Entered STN: 31 Aug 2001
TI Long-lived **isomeric nuclei** as sources of intense **gamma** bursts
AU Rivlin, L. A.; Zadernovsky, A. A.; Carroll, J. J.; Agee, F. J.
SO Proceedings of the International Conference on Lasers (**2000**), 23rd, 538-544
CODEN: PICLDV; ISSN: 0190-4132
PB STS Press
LA English
AB We considered a new type of nuclear chain reaction, namely, a reaction of anti-Stokes radiative transitions of long-lived **metastable** isomers, triggered by the quasi-equilibrium blackbody radiation of a dense hot plasma. The relatively high temperature of the plasma is maintained by its partial **absorption** of **gamma** **photons** emitted by nuclei following their **absorption** of trigger **photons** of lower energy from the plasma. As a result, the energy stored in **metastable** isomeric states is released in a chain reaction and an intense burst of **gamma** photons is emitted. Quant. ests. of this chain reaction are presented.
ST **isomeric nuclei gamma ray** burst source; anti Stokes radiative transition **isomeric nuclei** **gamma** source
IT Plasma
(dense hot; long-lived **isomeric nuclei** as sources of intense **gamma** bursts based on anti-Stokes radiative transitions of long-lived **metastable** isomers triggered by quasi-equilibrium blackbody radiation of)
IT **Nuclear energy level**
(**isomer**; long-lived **isomeric nuclei** as sources of intense **gamma** bursts based on anti-Stokes radiative transitions of long-lived **metastable** isomers triggered by quasi-equilibrium blackbody radiation of dense hot plasma)
IT **Nuclear transition**
(**isomeric**; long-lived **isomeric nuclei** as sources of intense **gamma** bursts based on anti-Stokes radiative transitions of long-lived **metastable** isomers triggered by quasi-equilibrium blackbody radiation of dense hot plasma)
IT Blackbody radiation
(long-lived **isomeric nuclei** as sources of intense **gamma** bursts based on anti-Stokes radiative transitions of long-lived **metastable** isomers triggered by quasi-equilibrium blackbody radiation of dense hot plasma)
IT **Gamma ray**
(source; long-lived **isomeric nuclei** as sources of intense **gamma** bursts based on anti-Stokes radiative transitions of long-lived **metastable** isomers triggered by quasi-equilibrium blackbody radiation of dense hot plasma)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
(1) Andreev, A; JETP Lett 1999, V69, P371 HCAPLUS
(2) Becker, W; Phys Lett A 1984, V106, P441
(3) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(4) Rivlin, L; Quantum Electronics (Moscow) 2000, V30(10) HCAPLUS
(5) Rivlin, L; Quantum Electronics (Moscow) 2000, V30(6), P551 HCAPLUS

25/9/1 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS

1434259 NTIS Accession Number: DE89006453
Study of Nuclear Fluorescence Excited by Laser Plasma X-Rays: Final Report, 10 September 1984-31 July 1988
Collins, C. B.
Texas Univ. at Dallas, Richardson. Center for Quantum Electronics and Applications.
Corp. Source Codes: 049995003; 9506953
Sponsor: Department of Energy, Washington, DC.
Report No.: DOE/DP/40208-T1
17 Oct 88 24p
Languages: English
Journal Announcement: GRAI8913; NSA1400
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NTIS Prices: PC A03/MF A01
Country of Publication: United States
Contract No.: AS08-84DP40208
The ultimate objective of the part of the research conducted under this contract was to demonstrate the **feasibility of accelerating the radioactive decay of populations of long-lived isomeric states of nuclear excitation.** Such an achievement would represent a substantial step along the path of research which might ultimately lead to a gamma-ray laser. Quantitative modeling has indicated that such a result might be obtained through a type of optical pumping with laser plasma X-rays produced by conventional devices of realistic size. The research necessary to test the overall viability of the concept is being pursued at the Center for Quantum Electronics of the University of Texas at Dallas. The work conducted under this contract was the first step of a type of scaling study that would indicate how close to threshold the medium for a gamma-ray laser could be pumped with existing fusion lasers. Calculations had indicated that if a suitable ''ideal'' medium can be found, the threshold for a gamma-ray laser would be attained before breakeven in fusion. This first phase of research was focused upon the demonstration of the overall efficiency for the **coupling of x-radiation into gamma -ray fluorescence through the absorption by a nuclear ground state population of X-radiation** from a laser plasma. As no actual laser shots were ever allocated, only theoretical results are available. 25 refs., 6 figs., 1 tab. (ERA citation 14:015656)
Descriptors: *Gamma Cascades; Lasers; Cross Sections; De-Excitation; Energy-Level Transitions; Feasibility Studies; Fluorescence; Gamma Radiation; Nuclear Cascades; Nuclear Structure; Optical Pumping; Progress Report; Radiative Decay; X-Ray Lasers
Identifiers: *Gamma ray lasers; ERDA/420300; ERDA/653005; NTISDE
Section Headings: 46C (Physics--Optics and Lasers); 46GE (Physics--General)

L145 ANSWER 4 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 2005:972543 HCAPLUS

DN 144:261892

TI The use of selected monochromatic **X-rays** to induce a **cascade** of **gamma** transitions from the 31-year **nuclear isomer** to the 4 second **isomeric** state of Hf-178

AU Zoita, N. C.; Davanloo, F.; Collins, C. B.; Pouvesle, J. M.; Emura, S.; Popescu, I. I.; Kirischuk, V. I.; Strilchuk, N. V.; Uruga, T.; Yoda, Y.

CS Center for Quantum Electronics, University of Texas, Richardson, TX, 75083-0688, USA

SO Journal de Physique IV: Proceedings (**2005**), 127(7ieme Colloque sur les Sources Coherentes et Incoherentes UV, VUV et X, **2004**), 163-168 CODEN: JPICEI; ISSN: 1155-4339

PB EDP Sciences

DT Journal

LA English

AB The Hf-178m2 **nuclear** spin **isomer** stores 2.45 MeV of energy for a **half life** of 31 years. Unperturbed, such nuclei radiate away the stored energy through the emission of **gamma** photons from electromagnetic (EM) transitions occurring within the nuclei. It has been shown that the **irradiation of samples** containing such nuclei with pulsed **X-rays** can accelerate the rate of the EM transitions by relaxing the selection rules upon **changes** of angular momenta. To date, most work has been done with incident **X-ray** energies between 9 and 10 keV, and in such cases the acceleration of the rate of **gamma** emission is immediate. Reported here is a channel for **deexcitation** excited by more energetic **X-rays** that results in a **cascade** of **gamma** transitions that includes a 4 s statistical time lag. This more protracted release of the energy stored in samples of the Hf-178m2 **nuclear isomers** encourages consideration of potential mech. and thermal applications.

IT **Nuclear energy level**
(**isomer**; use of selected monochromatic **X-rays** to induce **cascade** of **gamma** transitions from 31-yr **nuclear isomer** to 4 s **isomeric** state of hafnium-178)

IT **Gamma ray**
Gamma ray interactions
Nuclear energy level
Nuclear ground state
Nuclear spin
Nuclear transition
X-ray
(use of selected monochromatic **X-rays** to induce **cascade** of **gamma** transitions from 31-yr **nuclear isomer** to 4 s **isomeric** state of hafnium-178)

IT 378750-90-4, Hafnium-178m, reactions
(hafnium-178m; use of selected monochromatic **X-rays** to induce **cascade** of **gamma** transitions from 31-yr **nuclear isomer** to 4 s **isomeric** state of hafnium-178)

IT 14265-77-1, Hafnium 178, formation (nonpreparative)
(use of selected monochromatic **X-rays** to induce **cascade** of **gamma** transitions from 31-yr **nuclear isomer** to 4 s **isomeric** state of hafnium-178)

L15 ANSWER 9 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2001:151621 HCAPLUS
DN 134:272017
TI Stimulated **gamma** emission by anti-Stokes transitions of free isomeric nuclei
AU Zadernovsky, A. A.
CS Moscow State Institute of Radio Engineering, Electronics, and Automation, Moscow, 117454, Russia
SO Laser Physics (**2001**), 11(1), 16-22
CODEN: LAPHEJ; ISSN: 1054-660X
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB We examine in detail a way to achieve a pos. gain for stimulated **gamma** radiation based on the recently proposed concept for recoil assisted **gamma**-ray lasing in cooled (monokinetized) beam of free isomeric nuclei. For discussion of anti-Stokes conversion of X-ray radiation into stimulated **gamma** emission of free isomeric nuclei we consider a three level system. A nucleus is initially in the metastable isomeric state from which it can **decay** very slowly to its ground state. Under the influence of a broadband external X-ray radiation we can induce a two step **decay** to the nuclear ground state through an intermediate short-**lived** upper level. These triggering **two-quantum transitions** are accompanied by the **absorption of X-ray photons** with simultaneous emission of spontaneous or stimulated **gamma**-quanta. We present the cross section for the stimulated anti-Stokes resonance scattering with quanta of different multipolarity as well as the gain for stimulated **gamma** radiation in a cooled nuclear beam with spectral-local population inversion. A screening of isotopes has been made in order to pick out the candidates with appropriate arrangement of the nuclear states. Numerical estns. executed for the selected isomers yield the threshold ratio for concentration of isomeric nuclei to overall nuclear concentration in the beam and the pumping threshold spectral **photon** flux d. of X-ray radiation.
IT X-ray
(for **gamma** emission by anti-Stokes transitions of free isomeric nuclei)
IT **Gamma** ray
Gamma ray lasers
Nuclear transition
(**gamma** emission by anti-Stokes transitions of free isomeric nuclei)
IT Nuclear energy level
(isomer; **gamma** emission by anti-Stokes transitions of free isomeric nuclei)
RE
(5) Collins, C; Hyperfine Interactions 1997, V107, P3 HCAPLUS
(6) Collins, C; Laser Phys 1999, V9, P1 HCAPLUS
(7) Collins, C; Laser Phys 1999, V9, P8 HCAPLUS
(8) Collins, C; Phys Rev C 1988, V37, P2267 HCAPLUS
(9) Firestone, R; Table of Isotopes, 8th ed 1998
(10) Heitler, W; The Quantum Theory of Radiation 1956
(11) Landau, L; Quantum Mechanics 1974
(12) Loudon, R; The Quantum Theory of Light 1973
(13) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(15) Rivlin, L; Quantum Electron 1999, V6, P467

L98 ANSWER 5 OF 5 HCAPLUS COPYRIGHT ACS on STN
AN 1942:2254 HCAPLUS
DN 36:2254
OREF 36:331f-i,332a-c
TI Chemical effects of the **nuclear isomeric** transitions in bromine; evidence for atomic bromine and some of its properties
AU DeVault, Don; Libby, W. F.
SO Journal of the American Chemical Society (**1941**), 63, 3216-24
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA Unavailable
CC 3 (Subatomic Phenomena and Radiochemistry)
AB This study is an investigation of the chemical processes induced by the **isomeric** transition in which the **Br80 nucleus changes from its upper state of 4.5-hr. half-life to the lower one of 18-min. half-life**. Certain evidence was obtained for the occurrence of atomic Br detectable by its radioactivity and stable for an hr. or more because its concentration was very small. The procedure was to allow compds. made with 4.5-hr. Br to stand under various conditions for about 2 hrs. or more and then to perform chemical sepns. on them. The results indicate that the **isomeric** transition from 4.5-hr. to 18-min. **half-life** in Br80 usually induces a shower of electrons from the Br atom. If the mol. containing the Br atom is in a gaseous state it is decomposed by the resulting large pos. charge on it. The ejected 18-min. Br atom is quickly neutralized by electron transfer on collision with neutral mols. and ends up as HBr, Br or free Br atoms. The latter form in appreciable nos. with long life because of low concentration, appear not to be very soluble in water or concentrated H2SO4, and do not react readily with organic compds. such as EtBr. In liquid phases substitution reactions occur. Probably the cage effect keeps the highly charged Br in contact with neighboring mols. for a longer time so that they are broken up by the charge and the fragments have a chance to combine with the Br. Thus a smaller fraction of the 18-min. activity becomes water-soluble Primary recombination or deactivation might, of course, occur also. Substitution into CS2 occurs slightly less often than into CCl4. Alc. or aniline acts to release the 18-min. Br in inorg. form either by being attracted by Br atoms undergoing transition and reacting with them enough to prevent recombinations or substitutions or by reaction with the newly formed organic bromides while they are still activated. This tentative picture is based on the following exptl. findings. (1) A portion (roughly 25%) of the 18-min. activity ejected from organic compds. in the gas and in the liquid will interchange with Br2 or react with reducing agents, but is not extracted by water. (2) Another portion is readily extracted by pure water. (3) The amount of 18-min. bromine which goes into or remains in organic form is reduced to a min. by gaseous conditions or by adding alc. or aniline to liquids. (4) Substitution into CS2 is observed and into CCl4 is confirmed. The substitution into CCl4 occurs either from Br or alkyl bromides. (5) The products from the gas phase at 21-min. pressure do not show preference for either neg. or pos. charged plates. (6) A small dependence of the amount of extraction from BrO3- on the presence of Br- may indicate that an intermediate form is involved there.
IT Atomic **nuclei**
(**isomerism** of, of Br80)
IT 183748-02-9, Electron
(from bromine (radioactive) by internal conversion)
IT 7726-95-6, Bromine
(**isomers** of mass 80, **nuclear** transitions in)

L36 ANSWER 2 OF 5 HCAPLUS COPYRIGHT ACS on STN
AN 2001:908021 HCAPLUS
DN 136:43833
TI Direct observation and experimental investigation of the process of gamma-**decay controlling** in **quantum** nucleonics
AU Vysotskii, V. I.; Kornilova, A. A.; Sorokin, A. A.; Komisarova, V. A.; Reiman, S. I.; Riasnii, G. K.
CS Kiev Shevchenko University, Kiev, Ukraine
SO Conference Proceedings - Italian Physical Society (**2000**), 70(ICCF8), 225-230
CODEN: CPISEN; ISSN: 1122-1437
PB Editrice Compositori
DT Journal
LA English
AB The aims of the present expts. were direct observation and investigation of the controlled gamma-decay of radioactive nuclei by delayed gamma-gamma coincidence method. In the expts. with gamma-source 57Co (Fe57*) and with **gamma-absorber** made of stable 57Fe isotope we have discovered the **change (increase) of radiative lifetime** of the excited nucleus (in relation to resonant Mossbauer gamma-channel of decay) by 10-40% **and total lifetime** (including non-controlled non-Mossbauer gamma-radiation and non-controlled electron conversion channels of excited nucleus decay) **by 1%.**
IT Nuclear energy level
(change (increase) of radiative lifetime of the excited nucleus)
IT Gamma ray
(gamma-decay controlling in quantum nucleonics in gamma-source 57Co decay)
IT 14762-69-7, Iron 57, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(gamma-decay controlling in quantum nucleonics in gamma-source 57Co decay)
IT 13981-50-5, Cobalt 57, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(gamma-decay controlling in quantum nucleonics in gamma-source 57Co decay)
RE
(1) Vysotskii, V; Hyperfine Interactions 1997, V107, P277 HCAPLUS
(2) Vysotskii, V; International Conf on the Physics of Nuclear Science and Technology 1998, V2, P1739 HCAPLUS
(3) Vysotskii, V; Physical Review C 1998, V58, P337 HCAPLUS

L36 ANSWER 1 OF 5 HCAPLUS COPYRIGHT ACS on STN
AN 2004:728399 HCAPLUS
DN 142:226785
TI Experimental Search for the Effect of Resonant Environment on the Mossbauer **Absorption** of Gamma Rays by 57Fe
AU Alpatov, V. G.; Bayukov, Yu. D.; Davydov, A. V.; Isaev, Yu. N.; Kartashov, G. R.; Korotkov, M. M.; Reiman, S. I.; Samoylov, V. M.
CS Institute of Theoretical and Experimental Physics, Moscow, 117218, Russia
SO JETP Letters (Translation of Pis'ma v Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki) (**2004**), 80(1), 9-11
CODEN: JTPLA2; ISSN: 0021-3640
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB Due to the virtual photon exchange between atomic nuclei and the field of zero-point electromagnetic oscillations, some nuclei of a given sample are in a virtual excited state with the **lifetime** .apprx..plcnst./E, where E is the energy of nuclear level. For 57Fe nuclei, whose first excited state has an energy of 14.4 keV, this **time** is equal to .apprx.4.6 + 10-20 s. If a thin 57Fe Mossbauer gamma-ray **absorber** is surrounded by a thick screen of the same atoms, the number of virtual excited nuclei in the **absorber** decreases and, at first glance, it should more strongly **absorb** Mossbauer gamma rays emitted by an external source and passing through the **absorber**. The ratio of the intensities of 14.4-keV gamma rays emitted by the 57Fe nuclide and passing through the thin resonant **absorber** is measured in the absence and presence of the resonant screen around the **absorber**. Comparison shows that these ratios measured for the gamma source at rest and in the oscillating state differ by 0.00123 ± 0.00075. This value should be treated as the upper limit for the desired effect under these exptl. conditions.
IT Gamma ray
Mossbauer effect
(effect of resonant environment on the Mossbauer **absorption** of 57Fe Mossbauer gamma-ray)
IT 14762-69-7, Iron 57, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(effect of resonant environment on the Mossbauer **absorption** of 57Fe Mossbauer gamma-ray)
RE
(1) Vysotskii, V; Hyperfine Interact 1997, V107, P277 HCAPLUS
(2) Vysotskii, V; Laser Phys 2001, V11, P442 HCAPLUS
(3) Vysotskii, V; Phys Rev C 1998, V58, P337 HCAPLUS
(4) Vysotskii, V; Pis'ma Zh Tekh Fiz 1984, V10, P300 HCAPLUS
(5) Vysotskii, V; Sov Tech Phys Lett 1984, V10, P126

L172 ANSWER 6 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 2001:151620 HCAPLUS
DN 134:272016
ED Entered STN: 02 Mar 2001
TI On the problem of forced release of nuclear energy of long-lived isomers
AU Rivlin, L. A.
CS MIREA Technical University, Moscow, 117454, Russia
SO Laser Physics (**2001**), 11(1), 12-15
CODEN: LAPHEJ; ISSN: 1054-660X
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
CC 70-1 (Nuclear Phenomena)
Section cross-reference(s): 73
AB We consider a new type of nuclear chain reaction, namely, a reaction of anti-Stokes radiative transitions of long-lived **metastable** isomers triggered by quasi-equilibrium black body radiation of a dense hot plasma which relatively high temperature is supported in its part by **absorption** of **gamma-photons** emitted by nuclei. As result the energy stored in **metastable** isomer states is released and an intense burst of gamma-photons is emitted. Quant. ests. are presented.
ST forced release **nuclear** energy **isomer**; black body radiation
IT Nuclear energy
Nuclear transition
(forced release of nuclear energy of long-lived isomers)
IT Blackbody radiation
(forced release of nuclear energy of long-lived isomers by)
IT **Gamma ray**
(forced release of nuclear energy of long-lived **isomers** by **gamma**-photons)
IT **Gamma ray** lasers
(forced release of nuclear energy of long-lived isomers in relation to)
IT **Nuclear energy level**
(**isomer**; forced release of **nuclear** energy of long-lived isomers)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Andreev, A; JETP Lett 1999, V69, P371 HCAPLUS
(2) Becker, W; Phys Lett A 1984, V106, P441
(3) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(4) Rivlin, L; Quantum Electron 2000, V30(11) HCAPLUS
(5) Rivlin, L; Quantum Electron 2000, V30, P551 HCAPLUS

25/9/2
DIALOG(R)File 2:INSPEC

07462248 INSPEC Abstract Number: A2000-04-3110-001
Title: Spectral analysis for systems of atoms and molecules **coupled** to the **quantized radiation** field
Author(s): Bach, V.; Frohlich, J.; Sigal, I.M.
Author Affiliation: Fachbereich Math., Tech. Univ. Berlin, Germany
Journal: Communications in Mathematical Physics vol.207, no.2 p. 249-90
Publisher: Springer-Verlag,
Publication Date: Nov. 1999 Country of Publication: Germany
CODEN: CMPHAY ISSN: 0010-3616
SICI: 0010-3616(199911)207:2L.249:SASA;1-U
Material Identity Number: C060-1999-028
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: We consider systems of static **nuclei** and electrons-atoms and molecules-**coupled** to the **quantized radiation** field. The interactions between electrons and the soft modes of the quantized electromagnetic field are described by minimal coupling, p to p-eA(x), where A(x) is the electromagnetic vector potential with an ultraviolet cutoff. If the interactions between the electrons and the quantized radiation field are turned off, the atom or molecule is assumed to have at least one bound state. We prove that, for sufficiently small values of the fine structure constant alpha , the interacting system has a ground state corresponding to the bottom of its energy spectrum. For an atom, we prove that its excited states above the ground state turn into **metastable states** whose **life-times** we estimate. Furthermore the energy spectrum is absolutely continuous, except, perhaps,in a small interval above the ground state energy and around the threshold energies of the atom or molecule. (36 Refs)
Subfile: A
Descriptors: atomic structure; bound states; eigenvalues and eigenfunctions; ground states; metastable states; molecular electronic states; quantum electrodynamics; resonant states; spectral line breadth
Identifiers: spectral analysis; coupled atoms; coupled molecules; quantized radiation field; static **nuclei**; static electrons; electron interactions; soft modes; minimal coupling; electromagnetic vector potential; QED; ultraviolet cutoff; bound state; fine structure constant; quantum electrodynamics; energy spectrum; excited states; metastable states ; **lifetimes**; absolutely continuous spectrum; ground state energy; threshold energies; Hamiltonian; bound soft photons; resonances; coupled electronic systems
Class Codes: A3110 (General theory of structure, transitions and chemical binding in atoms and molecules); A0365G (Solutions of wave equations: bound state in quantum theory); A1220D (Specific calculations and limits of quantum electrodynamics); A3150 (Excited states of atoms and molecules); A3270J (Atomic line shapes, widths, and shifts)

L15 ANSWER 1 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2005:40353 HCAPLUS
DN 142:304671
TI Enhanced nuclear level **decay** in hot dense plasmas
AU Gosselin, G.; Morel, P.
CS Departement de Physique Theorique et appliquee, Service de Physique Nucleaire, Commissariat a l'energie atomique, Bruyeres-le-Chatel, 91680, Fr.
SO Physical Review C: Nuclear Physics (**2004**), 70(6), 064603/1-064603/9
CODEN: PRVCAN; ISSN: 0556-2813
PB American Physical Society
DT Journal
LA English
AB A model of nuclear level **decay** in a plasma environment is described. Nuclear **excitation** and **decay** by **photon** processes, nuclear **excitation** by electron capture and **decay** by internal conversion were taken into account. The electrons in the plasma are described by a relativistic average atom model for the bound electrons and by a relativistic Thomas-Fermi-Dirac model for the free electrons. Nuclear **decay** of an isomeric level may be enhanced through an intermediate level lying above the isomer. An enhanced nuclear **decay rate** may occur for temps. far below the **excitation** energy of the transition to the intermediate level. In most cases, the enhancement factor may reach several decades.
IT Plasma
(dense; model enhanced nuclear level **decay** in hot dense plasmas in which bound electrons are described by relativistic average atom model and free electrons are described by relativistic Thomas-Fermi-Dirac model)
IT Plasma
(hot; model enhanced nuclear level **decay** in hot dense plasmas in which bound electrons are described by relativistic average atom model and free electrons are described by relativistic Thomas-Fermi-Dirac model)
IT Nuclear energy level
(isomer; nuclear **decay** of isomeric level in hot dense plasmas may be enhanced through intermediate level lying above isomer)
IT Nuclear transition
(model enhanced nuclear level **decay** in hot dense plasmas in which bound electrons are described by relativistic average atom model and free electrons are described by relativistic Thomas-Fermi-Dirac model)
RE
(25) Olariu, S; Phys Rev C 1997, V56, P381 HCAPLUS
(26) Olariu, S; Phys Rev C 1998, V58, P2560 HCAPLUS
(27) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS

L15 ANSWER 2 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2003:431382 HCAPLUS
DN 139:297756
TI Beam-based production of 178m2Hf
AU Farrell, J. Paul; Dudnikov, V.; Carroll, J. J.; Merkel, G.
CS Brookhaven Technology Group, Inc., Setauket, NY, USA
SO Hyperfine Interactions (**2003**), Volume Date 2002, 143(1-4), 55-61
CODEN: HYINDN; ISSN: 0304-3843
PB Kluwer Academic Publishers
DT Journal
LA English
AB The production yield for the reaction 176Yb(9Be,α3n)178Hf was studied using the FN tandem-injected, superconducting LINAC accelerator at SUNY at Stony Brook. The exptl. yield of the 178Hf ground state .**gamma** .-rays was compared with that of 180W as a function of the energy. In this way, the cross section for the production of the incomplete fusion . **gamma**.-rays in 178Hf was evaluated. The population strength of the high-spin states in 178Hf was investigated by coincidence measurements. The high-spin states above 16+ were weakly populated, although the low-spin ground state transitions had reasonable cross sections. The maximum cross section for the reaction 176Yb(9Be,α3n)178m2Hf is not > 5 mb.
IT **Gamma** ray
Nuclear energy level
Nuclear level **excitation**
(beam-based production of 178m2Hf and population of its high-spin states)
IT Heavy ion beams
Nuclear fusion
(beam-based production of 178m2Hf via 176Yb(9Be,α3n))
IT 12586-31-1, Neutron 12587-46-1, Alpha particle
RL: NUU (Other use, unclassified); USES (Uses)
(beam-based production of 178m2Hf via 176Yb(9Be,α3n))
IT 7440-41-7, Beryllium9, reactions 15751-45-8, Ytterbium176, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(beam-based production of 178m2Hf via 176Yb(9Be,α3n))
IT 14265-77-1P, Hafnium178, preparation
RL: PNU (Preparation, unclassified); PREP (Preparation)
(metastable; beam-based production of 178m2Hf via 176Yb(9Be,α3n))
RE
(1) Ahmad, I; Phys Rev Lett 2001, V87, P072503 MEDLINE
(2) Baldwin, G; Reviews of Modern Physics 1997, V69, P1085 HCAPLUS
(3) Chadwick, M; Nucl Sci Eng 1991, V108, P117 HCAPLUS
(4) Collins, C; Hyp Interact 1997, V107, P3 HCAPLUS
(5) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(6) McDaniel, P; private communication
(7) Mullins, S; Phys Lett B 1997, V393, P279 HCAPLUS
(8) Oganessian, Y; J Phys C Nucl Part Phys 1992, V18, P393
(9) Olariu, S; Phys Rev C 1998, V58, P2560 HCAPLUS

L15 ANSWER 4 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2002:209502 HCAPLUS
DN 136:222565
TI Search for γ-emission from isomeric nuclei induced by MeV electron beams
AU Olariu, Silviu; Olariu, Agata; Martin, Diana; Niculescu, Anastase
CS Tandem Laboratory, National Institute for Physics and Nuclear Engineering, Bucharest, Rom.
SO Hyperfine Interactions (**2002**), Volume Date 2001, 135(1-4), 71-81
CODEN: HYINDN; ISSN: 0304-3843
PB Kluwer Academic Publishers
DT Journal
LA English
AB We study the nuclear transitions induced by incident electrons having an energy of several MeV's. We measured the cross sections for the **excitation** of isomeric nuclear states by 7.7 MeV electrons. The cross sections were 1.2 μb for 111mCd, 5.5 μb for 113mIn and 7.0 μb for 115mIn. The peak activation **rates** were 1.8 + 10-12 s-1 for 111mCd, 8.1 + 10-12 s-1 for 113mIn and 1.0 + 10-11 s-1 for 115mIn, for a peak power of the electron beam of 1.8 + 106 W cm-2. Then we describe for the first time the results of a series of expts. in which samples containing the isomeric nuclei 166mHo and 186mRe have been irradiated with MeV electron beams. An upper limit of 17 mb has been determined for the cross section of electron-induced .**gamma** .-emission from 166mHo and an upper limit of 2.2 mb has been determined for the cross section of electron-induced γ-emission from 186mRe.
IT Nuclear energy level
(isomer; search for γ-emission from isomeric nuclei induced by MeV electron beams)
IT Electron collisions
Nuclear transition
(nuclear transitions induced by incident electrons)
IT Electron beams
Gamma ray
(search for γ-emission from isomeric nuclei induced by MeV electron beams)
IT 13967-65-2, Ho 166, processes 14191-71-0, In 115, processes
14336-64-2, Cd 111, processes 14885-78-0, In 113, processes
14998-63-1, Re 186, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(nuclear isomeric transitions induced by incident electrons)
RE
(1) Booth, E; Nucl Phys A 1967, V98, P529
(2) Eichler, J; Relativistic Atomic Collisions 1995, P47
(3) Olariu, S; Essay on the gamma ray laser, nucl-ex/9907008
(4) Olariu, S; Nucl Instrum Meth B 2001, V179, P11 HCAPLUS
(5) Olariu, S; Phys Rev C 1997, V56, P381 HCAPLUS
(6) Olariu, S; Phys Rev C 1998, V58, P2560 HCAPLUS
(7) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(8) Olariu, S; Rev Roum Phys, nucl-ex/9907010 1982, V27, P559 HCAPLUS
(9) Olariu, S; Romanian Journal of Physics 1999, V44(Supplement), P45
(10) Olariu, S; nucl-ex 9902011
(11) Robl, H; Nucl Phys 1956-1957, V2, P641

L15 ANSWER 5 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2002:209500 HCAPLUS
DN 136:301087
TI x-ray-driven **gamma** emission
AU Carroll, J. J.; Karamian, S. A.; Rivlin, L. A.; Zadernovsky, A. A.
CS Center for Photon-Induced Processes, Department of Physics and Astronomy, Youngstown State University, Youngstown, OH, 44555, USA
SO Hyperfine Interactions (**2002**), Volume Date 2001, 135(1-4), 3-50
CODEN: HYINDN; ISSN: 0304-3843
PB Kluwer Academic Publishers
DT Journal; General Review
LA English
AB A review. X-ray-driven **gamma** emission describes processes that may release nuclear energy in a clean way, as bursts of incoherent or coherent **gamma** rays without the production of radioactive byproducts. Over the past decade, studies in this area, as a part of the larger field of quantum nucleonics, have gained tremendous momentum. Since 1987 **photons could trigger gamma emission from a long-lived metastable nuclear excited state** of 1 nuclide and it appears likely that triggering in other isotopes will be demonstrated conclusively in the near future. With these exptl. results have come new proposals for the creation of collective and avalanche-like incoherent **gamma**-ray bursts and even for the ultimate light source, a **gamma**-ray laser. Obviously, many applications would benefit from controlled bursts of **gamma** radiation, whether coherent or not. This paper reviews the exptl. results and concepts for the production of **gamma** rays, driven by externally produced x-rays.
IT **Gamma** ray
Gamma ray lasers
Nuclear energy
X-ray
(x-ray-driven **gamma** emission)
RE
(23) Collins, C; Hyp Interact 1997, V107, P141 HCAPLUS
(24) Collins, C; Hyp Interact 1997, V107, P3 HCAPLUS
(25) Collins, C; J Appl Phys 1982, V53, P4645 HCAPLUS
(26) Collins, C; Laser Phys 1999, V9, P1 HCAPLUS
(27) Collins, C; Phys Rev C 1988, V37, P2267 HCAPLUS
(28) Collins, C; Phys Rev C 1990, V42, P1813
(29) Collins, C; Phys Rev C 2000, V61, P054305
(30) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(70) Olariu, S; Europhys Lett 1997, V37, P177 HCAPLUS
(71) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(73) Rivlin, L; Hyp Interact 1997, V107, P57 HCAPLUS
(74) Rivlin, L; Quant Elec (Moscow) 2000, V30, P551 HCAPLUS
(75) Rivlin, L; Quant Elec (Moscow) 2000, V30, P937 HCAPLUS
(76) Rivlin, L; Quant Elec (invited paper) 1999, V29, P467 HCAPLUS
(77) Rivlin, L; Sov J Quant Elec 1992, V22, P471
(78) Rivlin, L; Soviet Inventor's Certificate No 621265 1961
(90) Vysotskii, V; Phys Rev C 1998, V58, P337 HCAPLUS
(95) Zadernovsky, A; Laser Phys 2001, V11, P16 HCAPLUS

L15 ANSWER 6 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2001:568059 HCAPLUS
DN 135:171551
TI Search for x-ray induced acceleration of the **decay** of the 31-yr isomer of 178Hf using synchrotron radiation
AU Ahmad, I.; Banar, J. C.; Becker, J. A.; Gemmell, D. S.; Kraemer, A.; Mashayekhi, A.; McNabb, D. P.; Miller, G. G.; Moore, E. F.; Pangault, L. N.; Rundberg, R. S.; Schiffer, J. P.; Shastri, S. D.; Wang, T. F.; Wilhelmy, J. B.
CS Physics Division, Argonne National Laboratory, Argonne, IL, 60439, USA
SO Physical Review Letters (**2001**), 87(7), 072503/1-072503/4
CODEN: PRLTAO; ISSN: 0031-9007
PB American Physical Society
DT Journal
LA English
AB Enhanced **decay** of the 31-yr isomer of 178Hf induced by x-ray irradiation has been reported previously. Here we describe an attempt to reproduce this result with an intense "white" x-ray beam from the Advanced **Photon** Source. No induced **decay** was observed The upper limits for the energy-integrated cross sections for such a process, over the range of energies of 20-60 keV x-rays, are less than 2 + 10-27 cm2 keV, below the previously reported values by more than 5 orders of magnitude; at 8 keV the limit is 5 + 10-26 cm 2 keV.
IT Nuclear energy level
(isomer; search for x-ray induced acceleration of **decay** of 31-yr isomer of 178Hf using synchrotron radiation)
IT X-ray
X-ray synchrotron radiation
(search for x-ray induced acceleration of **decay** of 31-yr isomer of 178Hf using synchrotron radiation)
IT 14265-77-1, hafnium-178, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(search for x-ray induced acceleration of **decay** of 31-yr isomer of 178Hf using synchrotron radiation)
RE
(1) Anon; Science 1999, V283, P769
(2) Collins, C; Hyperfine Interact 1997, V107, P3 HCAPLUS
(3) Collins, C; Laser Phys 1999, V9, P8 HCAPLUS
(4) Collins, C; Phys At Nucl 2000, V63, P2067 HCAPLUS
(5) Collins, C; Phys Rev C 2000, V61, P054305
(6) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(7) Dejus, R; Argonne National Laboratory Report 1993, ANL/APS/TB-3
(8) Dejus, R; Argonne National Laboratory Report 1994, ANL/APS/TB-17
(9) Lai, B; Argonne National Laboratory Report 1993, ANL/APS/TB-3
(10) McNabb, D; Phys Rev Lett 2000, V84, P2542 HCAPLUS
(11) Mullins, S; Phys Lett B 1997, V393, P297
(12) Mullins, S; Table of Isotopes 1996
(13) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(14) Olariu, S; Phys Rev Lett 2000, V84, P2541 HCAPLUS
(15) Van Klinken, J; Nucl Phys 1980, VA339, P189 HCAPLUS
(16) von Neumann-Cosell, P; Phys Rev Lett 2000, V84, P2543
(17) Walker, P; Nature 1999, V399, P35 HCAPLUS

L15 ANSWER 8 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2001:430827 HCAPLUS
DN 135:98210
TI Stimulated **gamma** radiation of free isomer nuclei upon anti-Stokes transitions
AU Zadernovsky, A. A.
CS Moscow State Institute of Radio Engineering, Electronics, and Automation (Technical University), Moscow, 117454, Russia
SO Quantum Electronics (**2001**), 31(1), 90-94
CODEN: QUELEZ; ISSN: 1063-7818
PB Turpion Ltd.
DT Journal
LA English
AB The resonance anti-Stokes conversion of broadband x-ray radiation to stimulated **gamma** radiation of free isomer nuclei is considered. The conversion involves the **2-quantum transition from the initial long- lived isomer state** of a nucleus via an intermediate level to the final state located below the isomer state. The quantum-mech. calcn. of the cross section for resonance stimulated anti-Stokes scattering involving quanta of the different multipolarity yields the estimate of the gain of stimulated **gamma** radiation in a nuclear beam with the spectrally local inversion and the estimate of the threshold spectral d. of the x-ray pump radiation flux.
IT Cooling
(laser-induced; stimulated **gamma** radiation of free isomer nuclei upon anti-Stokes transitions)
IT Doppler effect
Elementary particle magnetic moment
Gamma ray lasers
Giant resonance
Hamiltonian
Multipole moment
Nuclear ground state
Nuclear level **excitation**
Perturbation theory
Radiative transition
X-ray scattering
(stimulated **gamma** radiation of free isomer nuclei upon anti-Stokes transitions)
RE
(1) Adams, C; Prog Quantum Electron 1997, V21, P1 HCAPLUS
(2) Baklanov, E; Pis'ma Zh Eksp Teor Fiz 1975, V21, P286 HCAPLUS
(3) Baldwin, G; Rev Mod Phys 1997, V69, P1085 HCAPLUS
(4) Becker, W; Phys Lett A 1984, V106, P441
(5) Collins, C; Hyperfine Interact 1997, V107, P3 HCAPLUS
(6) Collins, C; Laser Physics 1999, V9, P1 HCAPLUS
(7) Collins, C; Laser Physics 1999, V9, P8 HCAPLUS
(8) Collins, C; Phys Rev C 1988, V37, P2267 HCAPLUS
(9) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(14) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(16) Rivlin, L; Kvantovaya Elektron 1999, V26, P122
(17) Rivlin, L; Kvantovaya Elektron 1999, V27, P189
(18) Rivlin, L; Quantum Electron 1999, V29, P122 HCAPLUS
(19) Rivlin, L; Quantum Electron 1999, V29, P467 HCAPLUS

L15 ANSWER 10 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2000:479170 HCAPLUS
DN 133:243546
TI On the cross-sections of nuclear isomer de-**excitation**
AU Karamian, S. A.
CS Joint Institute for Nuclear Research, Dubna, 141980, Russia
SO Proceedings of the International Conference on Lasers (**2000**), 22nd, 36-40
CODEN: PICLDV; ISSN: 0190-4132
PB STS Press
DT Journal
LA English
AB The probability of the 180mTa isomer depopulation by external radiation was recently measured in reactions induced by MeV Bremsstrahlung and fast neutrons. Growth of the K-mixing level d. with **excitation** energy is concluded. The **excitation** of nuclear transitions by soft **photons** (x-ray radiation) is currently of interest in view of a γ-ray laser. A modified equation for the cross-section of nuclear isomer depopulation is proposed and applied for understanding recent exptl. results on the stimulated **decay** of the 178m2Hf isomer.
IT Radioactive **decay**
X-ray
(cross-sections of nuclear isomer de-**excitation**)
IT 14265-77-1, Hafnium-178, properties 15759-29-2, Tantalum-180, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(cross-sections of nuclear isomer de-**excitation**)
RE
(1) Blatt, J; "Theoretical Nuclear Physics", Russian edition 1954, P465
(2) Collins, C; Hyperfine Interactions 1997, V107, P141 HCAPLUS
(3) Collins, C; Phys Rev 1990, VC42, PR1813
(4) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(5) Karamian, S; Acta Phys Pol 1995, VB26, P375
(6) Karamian, S; Phys Rev 1998, VC57, P1812
(7) Karamian, S; Phys Rev 1999, VC59, P755
(8) Karamian, S; Proc VI Intern School-Seminar on Heavy Ion Physics 1998, P565
(9) Olariu, S; Phys Rev 1998, VC58, P333

L15 ANSWER 11 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2000:436089 HCAPLUS
DN 133:183983
TI On the cross-sections of nuclear isomer de-**excitation**
AU Karamian, S. A.
CS Flerov Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, Dubna, 141980, Russia
SO Nuclear Shells-50 Years, International Conference on Nuclear Physics; 49th Meeting on Nuclear Spectroscopy and Nuclear Structure, Dubna, Russian Federation, Apr. 21-24, 1999 (**2000**), Meeting Date 1999, 417-420. Editor(s): Oganessian, Yuri Ts.; Kalpakchieva, Rumiana. Publisher: World Scientific Publishing Co. Pte. Ltd., Singapore, Singapore.
CODEN: 69ABKG
DT Conference
LA English
AB The probability of the 180mTa isomer depopulation by external radiation has been recently measured in reactions induced by MeV Bremsstrahlung and fast neutrons. Growth of the K-mixing level d. with **excitation** energy is concluded. The **excitation** of nuclear transitions by soft **photons** (X-ray radiation) is currently of interest in view of a γ-ray laser. A modified equation for the cross-section of nuclear isomer depopulation is proposed and applied for understanding recent exptl. results on the isomer stimulated **decay** of the 178m2Hf.
IT **Gamma** ray lasers
(cross-sections of 180mTa nuclear isomer de-**excitation** in relation to)
IT Nuclear energy level
(isomer; cross-sections of nuclear isomer de-**excitation**)
IT 15759-29-2, Tantalum 180, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(cross-sections of nuclear isomer de-**excitation**)
IT 14265-77-1, Hafnium 178, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(isomer stimulated **decay** of the 178m2Hf)
RE
(1) Blatt, J; "Theoretical Nuclear Physics", Russian edition 1954, P465
(2) Collins, C; Hyperfine Interactions 1997, V107, P141 HCAPLUS
(3) Collins, C; Phys Rev 1990, VC42, PR1813
(4) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(5) Karamian, S; Acta Phys Pol 1995, VB26, P375
(6) Karamian, S; Phys Rev 1998, V57, P1812 HCAPLUS
(7) Karamian, S; Phys Rev 1999, V59, P755 HCAPLUS
(8) Karamian, S; Proc VI Intern School-Seminar on Heavy Ion Physics, World Scientific, Singapore 1998, P565 HCAPLUS
(9) Olariu, S; Phys Rev 1998, VC58, P333

L15 ANSWER 12 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 2000:164534 HCAPLUS
DN 132:199780
TI Comment on "Accelerated Emission of **Gamma** Rays from the 31-yr Isomer of 178Hf Induced by X-Ray Irradiation"
AU Olariu, Silviu; Olariu, Agata
CS Institute of Physics and Nuclear Engineering Magurele, Bucharest, 76900, Rom.
SO Physical Review Letters (**2000**), 84(11), 2541
CODEN: PRLTAO; ISSN: 0031-9007
PB American Physical Society
DT Journal
LA English
AB **A Comment on the Letter by C.B. Collins, et al., Phys.Rev.Lett.82, 695 (1999).** The authors of the Letter offer a Reply.
IT Gamma ray
Nuclear transition
X-ray
(accelerated emission of gamma rays from the 31-yr isomer of 178Hf induced by x-ray irradiation)
IT 14265-77-1, Hafnium 178, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(accelerated emission of gamma rays from the 31-yr isomer of 178Hf induced by x-ray irradiation)
RE
(1) Booth, E; Nucl Phys A 1967, V98, P529
(2) Collins, C; Laser Phys 1999, V9, P8 HCAPLUS
(3) Collins, C; Phys Rev Lett 1999, V82, P695 HCAPLUS
(4) Goryachev, B; Sov J Nucl Phys 1976, V23, P609
(5) Goryachev, B; Yad Fiz 1976, V23, P1145 HCAPLUS
(6) Olariu, S; Phys Rev C 1998, V58, P2560 HCAPLUS
(7) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(8) Olariu, S; Rev Roum Phys, nucl-ex/9907010 1982, V27, P559 HCAPLUS
(9) Olariu, S; nucl-ex/9902011
(10) Olariu, S; nucl-ex/9907008 unpublished

L15 ANSWER 13 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 1999:53829 HCAPLUS
DN 130:187838
TI Accelerated emission of **gamma** rays from the 31-yr isomer of 178Hf induced by x-ray irradiation
AU **Collins, C. B.**; Davanloo, F.; Iosif, M. C.; Dussart, R.; Hicks, J. M.; Karamian, S. A.; Ur, C. A.; Popescu, I. I.; Kirischuk, V. I.; Carroll, J. J.; Roberts, H. E.; McDaniel, P.; Crist, C. E.
CS Center for Quantum Electronics, University of Texas at Dallas, Richardson, TX, 75083, USA
SO **Physical Review Letters (1999), 82(4), 695-698**
CODEN: PRLTAO; ISSN: 0031-9007
PB American Physical Society
DT Journal
LA English
AB A sample of 6.3 + 1014 nuclei of the 4-quasiparticle isomer of 178Hf having a half-**life** of 31 yr and **excitation** energy of 2.446 MeV was irradiated with x-ray pulses from a device typically used in dental medicine. It was operated at 15 mA to produce bremsstrahlung radiation with an end point energy set to be 70 or 90 keV. Spectra of the isomeric target were taken with a high purity Ge detector. Intensities of selected transitions in the normal **decay** cascade of the 178Hf isomer were found to increase by about 4%. Such an accelerated **decay** is consistent with an integrated cross section of 1 + 10-21 cm2 keV for the resonant **absorption** of x rays to induce **gamma decay**.
IT X-ray
(accelerated emission of **gamma** rays from hafnium-178 isomer induced by)
IT **Gamma** ray
(accelerated emission of **gamma** rays from hafnium-178 isomer induced by x-ray irradiation)
IT 14265-77-1, Hafnium 178, properties
RL: PRP (Properties)
(accelerated emission of **gamma** rays from hafnium-178 isomer induced by x-ray irradiation)
RE
(1) Browne, E; Nucl Data Sheets 1994, V72, P221 HCAPLUS
(2) Collins, C; Hyperfine Interact 1997, V107, P141 HCAPLUS
(3) Collins, C; Hyperfine Interact 1997, V107, P3 HCAPLUS
(4) Collins, C; J Appl Phys 1982, V53, P4645 HCAPLUS
(5) Collins, C; Phys Rev C 1988, V37, P2267 HCAPLUS
(6) Collins, C; Phys Rev C 1990, V42, PR1813 HCAPLUS
(7) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(8) Singh, B; Nucl Data Sheets 1995, V75, P199 HCAPLUS
(9) Walker, P; Phys Lett B 1997, V408, P42 HCAPLUS

L15 ANSWER 14 OF 14 HCAPLUS COPYRIGHT ACS on STN
AN 1998:629645 HCAPLUS
DN 129:336449
OREF 129:68473a,68476a
TI Power densities for two-step γ-ray transitions from isomeric states
AU Olariu, Silviu; Olariu, Agata
CS Department of Fundamental Experimental Physics, Institute of Physics and Nuclear Engineering, Magurele, Bucharest, 76900, Rom.
SO Physical Review C: Nuclear Physics (**1998**), 58(4), 2560-2562
CODEN: PRVCAN; ISSN: 0556-2813
PB American Physical Society
DT Journal
LA English
AB We have calculated the incident **photon** power d. P2 for which the two-step induced emission **rate** from an isomeric nucleus becomes equal to the natural isomeric **decay rate**. We have analyzed two-step transitions for isomeric nuclei with a half-**life** greater than 10 min, for which there is an intermediate state of known energy, spin and half-**life**, for which the intermediate state is connected by a known γ-ray transition to the isomeric state and to at least another intermediate state, and for which the relative intensities of the transitions to lower states are known. For the isomeric nucleus 166mHo, which has a 1200 yr isomeric state at 5.98 keV, we have found a value of P2 = 6.3 + 107 W cm-2, the intermediate state being the 263.8 keV level. We have found power densities P2 of the order of 1010 W cm-2 for several other isomeric nuclei.
IT **Gamma** ray
Nuclear transition
(power densities for two-step γ-ray transitions from isomeric states)
IT 7440-16-6, Rhodium 103, properties 13965-98-5, Krypton 83, properties 13967-65-2, Holmium 166, properties 13981-24-3, Chlorine 34, properties 13981-38-9, Cobalt 58, properties 13981-59-4, Tin 117, properties 13982-64-4, Strontium 87, properties 14314-35-3, Tin 119, properties 14336-66-4, Cadmium 113, properties 14390-73-9, Tellurium 125, properties 14683-06-8, Tin 121, properties 14683-07-9, Tin 123, properties 14683-10-4, Antimony 124, properties 14683-11-5, Xenon 131, properties 14809-56-4, Technetium 95, properties 14914-66-0, Indium 117, properties 15117-96-1, Uranium 235, properties 15759-35-0, Technetium 97, properties 15761-06-5, Osmium 189, properties
RL: PRP (Properties)
(power densities for two-step γ-ray transitions from isomeric states)
RE
(1) Band, I; At Data Nucl Data Tables 1976, V18, P433 HCAPLUS
(2) Firestone, R; Table of Isotopes, 8th ed 1996
(3) Olariu, S; Phys Rev C 1998, V58, P333 HCAPLUS
(4) Rossel, F; At Data Nucl Data Tables 1978, V21, P291
(5) Rossel, F; At Data Nucl Data Tables 1978, V21, P91

L36 ANSWER 3 OF 5 HCAPLUS COPYRIGHT ACS on STN
AN 2001:248487 HCAPLUS
DN 134:332353
TI Direct observation and experimental investigation of controlled gamma-**decay** of Mossbauer radioactive isotopes by the method of delayed gamma-gamma coincidence
AU Vysotskii, V. I.; Kornilova, A. A.; Sorokin, A. A.; Komisarova, V. A.; Reiman, S. I.; Riasnii, G. K.
CS Shevchenko Kiev University, Kiev, Ukraine
SO Laser Physics (**2001**), 11(3), 442-447
CODEN: LAPHEJ; ISSN: 1054-660X
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB The aims of the present expts. were direct observation and investigation of the controlled gamma-**decay** of radioactive nuclei by delayed gamma-gamma coincidence method. In the expts. with gamma-source 57Co (57Fe*) and with gamma-**absorber** made of stable 57Fe isotope we have discovered the change (increase) of radiative **lifetime** of excited nucleus (in relation to resonant Mossbauer gamma-channel of **decay**) by 10-40% and total **lifetime** (including noncontrolled non-Mossbauer gamma-radiation and noncontrolled electron conversion channels of excited nucleus **decay**) by 1%.
IT Gamma ray
Mossbauer effect
(controlled gamma-**decay** of Mossbauer radioactive isotopes from delayed gamma-gamma coincidence)
IT Radionuclides, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(controlled gamma-**decay** of Mossbauer radioactive isotopes from delayed gamma-gamma coincidence)
IT Electron internal conversion
Nuclear energy level
(increase of radiative **lifetime** of excited nucleus)
IT 14762-69-7, Iron 57, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(controlled gamma-**decay** of)
RE
(1) Vysotskii, V; Hyperfine Interactions 1997, V107, P277 HCAPLUS
(2) Vysotskii, V; International Conf on the Physics of Nuclear Science and Technology, Proceedings 1998, V2, P1739 HCAPLUS
(3) Vysotskii, V; Phys Rev C 1998, V58, P337 HCAPLUS

L36 ANSWER 4 OF 5 HCAPLUS COPYRIGHT ACS on STN
AN 1999:336680 HCAPLUS
DN 131:65297
TI Alternative explanation of the effect of Mossbauer γ-line narrowing observed in the experiments by V.I. Vysotskii et al.
AU Davydov, A. V.; Isaev, Yu. N.
CS ITEP, Bol'shaya Cheremushkinskaya ul., Moscow, 117259, Russia
SO Laser Physics (**1999**), 9(2), 522-527
CODEN: LAPHEJ; ISSN: 1054-660X
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB It is shown that, under conditions of the expts. by V.I. Vysotskii et al. [1], the effect of 119Sn Moessbauer γ-line narrowing, which was observed when a resonant screen was brought to the γ-source, may be almost entirely explained by the contribution of γ-rays resonantly scattered by the screen. This explanation does not require the mechanism discussed by the authors of [1], which consists in the influence of the distortion caused by the screen of zero vibrations of electromagnetic vacuum on the half-**life** of 119Sn excited nuclei. In the case of the γ-source and screen made of CaSnO3 γ-line narrowing via the contribution of resonantly scattered γ-rays is 0.82-0.72%, depending on the thickness of the resonant detector used. In [1] the value obtained was 0.70 ± 0.42%.
IT Gamma ray
Gamma ray detectors
(Mossbauer γ-line narrowing in calcium tin oxide due to resonant **absorber** screen scattering)
IT Mossbauer effect
(line narrowing in calcium tin oxide due to resonant **absorber** screen scattering)
IT 12013-46-6, Calcium tin oxide (CaSnO3)
RL: PRP (Properties)
(Mossbauer γ-line narrowing due to resonant **absorber** screen scattering)
IT 18282-10-5, Tin oxide SnO2
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(Mossbauer γ-line narrowing in calcium tin oxide due to resonant **absorber** screen scattering)
IT 14314-35-3, Tin-119, properties
RL: PRP (Properties)
(Mossbauer γ-line narrowing in calcium tin oxide due to resonant **absorber** screen scattering)
RE
(1) Vysotskii, V; Phys Rev C 1998, V58, P337 HCAPLUS
(2) Vysotskii, V; Technical Digest for First International Induced Gamma Emission Workshop IGE'97 1997, P83
(3) Vysotskii, V; Technical Digest of First International Induced Gamma Emission Workshop IGE'97 1997, P81

L145 ANSWER 48 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1953:54271 HCAPLUS
DN 47:54271
OREF 47:9176h-i,9177a-b
TI **Influence of chemical state on the lifetime of a nuclear isomer, technetium99m**
AU Bainbridge, Kenneth T.; Goldhaber, M.; Wilson, Elizabeth
CS Brookhaven Natl. Lab., Upton, NY
SO Physical Review (**1953**), 90, 430-9
CODEN: PHRVAO; ISSN: 0031-899X
DT Journal
LA Unavailable
AB cf. C.A. 46, 6012b. Since **nuclear isomeric** transition can occur by emission of either a **γ-ray** or an internal-conversion electron, the total rate of decay can be expected to **vary** with **change** in electronic environment, such as a difference in chemical state. Differences in the decay constant of the **isomer** Tc99m (6 hrs.) in different chemical combinations were measured by the double ionization chamber balance method. For this **isomer** λ is determined mainly by the internal-conversion probability of a 2-e.kv. transition which is followed promptly by a conveniently measurable 140-e.kv. **γ-ray**. Two compds. of septivalent Tc, were compared: λ(KTcO4) - λ(Tc2S7) = 27.0 ± 1.0 + 10-4 λ(Tc2S7); also λ (for the metal electroplated on Ni and reduced in H at 1000° for 1 hr.) - λ(Tc2S7) = 3.1 ± 1.2 + 10-4 λ(Tc2S7). Errors are standard deviations. There is evidence for diffusion of Tc into the Ni base and an accompanying **decrease** in λ(Tc) of .apprx.2 parts in 104 compared to pure crystalline metal. For the metal λ was measured directly as 0.1148 ± 0.0005/hr., giving a **half life** of 6.04 ± 0.03 hrs. (limit of error). The methods used for internally checking the data and the operation of the apparatus are illustrated, and the statistics of the measurements are discussed.
IT Atomic **nuclei**
(**isomerism** of Tc99)
IT Radiochemistry
(theories of)
IT **Gamma rays**
(transitions of, electronic environment and)
IT 12039-29-1, Technetium sulfide (Tc2S7)
(decay constant of Tc99 **isomer** in)
IT 75492-44-3, Potassium pertechnetate, KTcO4
(decay constant of Tc99 **isomer** in electroplated metal, in Tc2S7 and in)
IT 14133-76-7, Technetium, **isotope** of mass 99
(effect of chemical state on lifetime of 6-hr.)
IT 183748-02-9, Electron
(internal-conversion, **isomeric** transition by, electronic environment and)

L145 ANSWER 11 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 2001:422484 HCAPLUS

DN 135:142965

TI Temperature effect on the **decay periods** of long-lived 180mHf and 87mSr **isomers**

AU Alpatov, V. G.; Bayukov, Yu. D.; Davydov, A. V.; Isaev, Yu. N.; Kartashov, G. R.; Korotkov, M. M.; Samoylov, V. M.

CS State Scientific Center of the Russian Federation Institute for Theoretical and Experimental Physics, Moscow, 117259, Russia

SO JETP Letters (Translation of Pis'ma v Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki) (**2001**), 73(8), 385-388
CODEN: JTPLA2; ISSN: 0021-3640

PB MAIK Nauka/Interperiodica Publishing

DT Journal

LA English

AB Expts. on measuring the decay periods of long-lived 180mHf and 87mSr **isomers** at room temperature and at 77 K in massive samples of HfO2, Sr(NO3)2, and SrCO3 are reported. The **isomeric nuclear** states were excited by irradiating the samples with neutrons from a Pu-Be source. According to the theory of V.I. Vysotskii et al., the T1/2 value must **increase** if a γ-active nucleus is surrounded by many identical ground-state nuclei, because these distort the spectrum of electromagnetic vacuum oscillations near the **nuclear energy level.** As the temperature of the sample **decreases, γ-ray** lines narrow, especially for the low-energy Mossbauer transitions, thereby enhancing the resonance effect on the spectrum of vacuum oscillations. For the 180mHf **isomer,** whose upper γ-transition carries away 57.55 keV, the T1/2 value **increased** by 2.99 ± 0.87% upon sample cooling. For 87mSr, whose decay scheme has no Mossbauer lines, the relative **change** in T1/2 was 0.77 ± 0.53%.

IT **Gamma ray**
Nuclear transition
(temperature effect on decay periods of long-lived 87mSr **isomer** studied in)

IT 13982-64-4, strontium-87, properties 14265-78-2, hafnium-180, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(**metastable**; temperature effect on decay periods of long-lived 180mHf and 87mSr **isomers**)

IT 12055-23-1, Hafnia
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(temperature effect on decay periods of long-lived 180mHf **isomer** studied in)

IT 1633-05-2, Strontium carbonate 10042-76-9, Strontium nitrate
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(temperature effect on decay periods of long-lived 87mSr **isomer** studied in)

68/9/7
DIALOG(R)File 2:INSPEC

08245033 INSPEC Abstract Number: A2002-11-9530-003
Title: Long-lived **isomeric** nuclei as sources of intense gamma bursts
Author(s): Rivlin, L.A.; Zadernovsky, A.A.; Carroll, J.J.; Agee, F.J.
Author Affiliation: Moscow Inst. of Radio Eng., Electron. & Autom., Russia
Conference Title: Proceedings of the International Conference on LASERS 2000 p.538-44
Editor(s): Corcoran, V.J.; Corcoran, T.A.
Publisher: STS Press, McLean, VA, USA
Publication Date: 2001 Country of Publication: USA xiv+972 pp.
Material Identity Number: XX-2000-02853
Conference Title: Proceedings of 2000 International Conference on Lasers
Conference Sponsor: Soc. Opt. & Quantum Electron
Conference Date: 4-8 Dec. 2000 Conference Location: Albuquerque, NM,
Language: English Document Type: Conference Paper (PA)
Treatment: Theoretical (T)
Abstract: We consider a new type of nuclear chain reaction, namely, a reaction of anti-Stokes radiative transitions of long-lived metastable **isomers** , triggered by the quasiequilibrium black body radiation of a dense hot plasma.. The relatively high temperature of the plasma is maintained by its partial **absorption** of **gamma photons** emitted by nuclei following their **absorption** of trigger **photons** of lower energy from the plasma. As a result, the energy stored in metastable **isomeric** states is released in a chain reaction and an intense burst of gamma photons is emitted. Quantitative estimates of this chain reaction are presented. (5 Refs)
Subfile: A
Descriptors: astrophysical plasma; cosmic ray nuclei; gamma-ray production; gamma-ray sources (astronomical); gamma-ray spectra; **nuclear energy level transitions**; nuclear **isomerism**; nuclear reaction theory; stellar internal processes
Identifiers: long-lived **isomeric** nuclei; intense gamma-ray bursts sources; nuclear chain reaction; antiStokes radiative transitions; **quantum** nucleonics; quasiequilibrium black body radiation; dense hot plasma; high plasma temperature; **gamma photon absorption**; trigger photons
Class Codes: A9530C (Elementary particle and nuclear processes in astrophysics); A9530Q (Astrophysical hydromagnetics and plasmas); A9870R (Cosmic gamma-ray sources); A9440L (Cosmic ray composition and energy spectra); A2160 (Nuclear-structure models and methods); A2410 (Nuclear reaction and scattering models and methods); A2320L (Nuclear gamma transitions and level energies)

68/9/9
DIALOG(R)File 2:INSPEC

07906502 INSPEC Abstract Number: A2001-11-2320-004
Title: Stimulated gamma emission by anti-Stokes transitions of free **isomeric** nuclei
Author(s): Zadernovsky, A.A.
Author Affiliation: Moscow State Inst. of Radio Eng. & Autom., Russia
Journal: Laser Physics vol.11, no.1 p.16-22
Publisher: MAIK Nauka/Interperiodica Publishing,
Publication Date: Jan. 2001 Country of Publication: Russia
CODEN: LAPHEJ ISSN: 1054-660X
SICI: 1054-660X(200101)11:1L.16:SGEA;1-Z
Material Identity Number: C437-2001-002
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: We examine in detail a way to achieve a positive gain for stimulated gamma radiation based on the recently proposed concept for recoil assisted gamma-ray lasing in cooled (monokinetized) beam of free **isomeric** nuclei. For discussion of anti-Stokes conversion of X-ray radiation into stimulated gamma emission of free **isomeric** nuclei we consider a three level system. A nucleus is initially in the metastable **isomeric** state from which it can decay very slowly to its ground state. Under the influence of a broadband external X-ray radiation we can induce a two step decay to the nuclear ground state through an intermediate short-lived upper level. These triggering two-**quantum** transitions are accompanied by the **absorption** of **X-ray photons** with simultaneous emission of spontaneous or stimulated gamma-**quanta**. We present the cross section for the stimulated anti-Stokes resonance scattering with **quanta** of different multipolarity as well as the gain for stimulated gamma radiation in a cooled nuclear beam with spectral-local population inversion. A screening of isotopes has been made in order to pick out the candidates with appropriate arrangement of the nuclear states. Numerical estimations executed for the selected **isomers** yield the threshold ratio for concentration of **isomeric** nuclei to overall nuclear concentration in the beam and the pumping threshold spectral photon flux density of X-ray radiation. (15 Refs)
Subfile: A
Descriptors: gamma-ray lasers; gamma-ray spectra; internal conversion; laser theory; laser transitions; **nuclear energy level lifetimes**; **nuclear energy** level transitions; nuclear **isomerism**; population inversion; stimulated emission
Identifiers: stimulated gamma emission; anti-Stokes transitions; free **isomeric** nuclei; positive gain; stimulated gamma radiation; recoil assisted gamma-ray lasing; cooled beam; monokinetized beam; anti-Stokes conversion; X-ray radiation; three level system; metastable **isomeric** state; ground state; broadband external X-ray radiation; two step decay; nuclear ground state; intermediate short-lived upper level; triggering two-**quantum** transitions; X-ray photons; simultaneous emission; stimulated gamma-**quanta**; spontaneous gamma-**quanta**; cross section; stimulated anti-Stokes resonance scattering; multipolarity; cooled nuclear beam; spectral-local population inversion; isotopes; screening; nuclear states; numerical estimations; selected **isomers**; threshold ratio; concentration; **isomeric** nuclei; nuclear concentration; pumping threshold; spectral photon flux density

68/9/10
DIALOG(R)File 2:INSPEC

07067379 INSPEC Abstract Number: A9823-2320-005
Title: Weak magnetic fields in experiments on gamma-resonance excitation of long-lived /sup 109/Ag **isomeric** states
Author(s): Davydov, A.V.; Isaev, Yu.N.; Samoilov, V.M.
Author Affiliation: Inst. for Theor. & Exp. Phys., Moscow, Russia
Journal: Izvestiya Rossiiskoi Akademii Nauk. Seriya Fizicheskaya Conference Title: Izv. Ross. Akad. Nauk, Ser. Fiz. (Russia) vol.61, no.11 p.2221-6
Publisher: Allerton Press,
Publication Date: 1997 Country of Publication: Russia
CODEN: IRAFEO ISSN: 0367-6765
SICI: 0367-6765(1997)61:11L.2221;1-N
Material Identity Number: P872-98015
Translated in: Bulletin of the Russian Academy of Sciences. Physics vol.61, no.11 p.1747-51
Publication Date: 1997 Country of Publication: USA
CODEN: BRSPEX ISSN: 1062-8738
SICI of Translation: 1062-8738(1997)61:11L.1747:WMFE;1-0
U.S. Copyright Clearance Center Code: 1062-8738/97/$15.00
Conference Title: Forty-Sixth International Conference on Nuclear Spectroscopy and Nuclear Structure
Conference Date: June 1996 Conference Location: Moscow, Russia
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: A nonconventional method is proposed for observing the Mossbauer effect on /sup 109/Ag nuclei with excitation of a long-lived **isomeric** 7/2/sup +/ state with the energy 88 keV and average **lifetime** 57 s. The method is based on measuring the Mossbauer self-**absorption** of **gamma quanta** in a single-crystal gamma source and revealing the angular dependence of intensities of the Zeeman components of the gamma spectrum split by the Earth's magnetic field. Under these conditions, only identical Zeeman components of the emission and **absorption gamma** lines can overlap and thus the total probability of self-absorption turns out to be proportional to the sum of Zeeman component intensities squared and depends on the angle between the field direction and the momentum of the emitted gamma **quantum.** (12 Refs)
Subfile: A
Descriptors: Mossbauer effect; nuclear collective states; **nuclear energy level transitions**; nuclear **isomerism**; nuclear resonances; nuclei with mass number 90 to 149; Zeeman effect
Identifiers: weak magnetic fields; gamma-resonance excitation; /sup 109/Ag long-lived **isomeric** states; Mossbauer effect; long-lived **isomeric** 7/2/sup +/ state; angular dependence; Zeeman components
Class Codes: A2320L (Nuclear gamma transitions and level energies); A2760 (Properties of nuclei with 90 <or= A <or= 149); A7680 (Mossbauer effect; other gamma-ray spectroscopy in condensed matter); A7820L (Magneto-optical effects (condensed matter)); A7170E (Spin-orbit coupling, Zeeman, Stark and strain splitting (condensed matter)); A2110R (Collective structure in nuclear levels); A2430 (Resonance nuclear reactions and scattering)

101/9/6
DIALOG(R)File 2:INSPEC

08256894 INSPEC Abstract Number: A2002-12-7865K-004
Title: Triggered single photons and **entangled** photons from a **quantum** dot microcavity
Author(s): Pelton, M.; Santori, C.; Solomon, G.S.; Benson, O.; Yamamoto, Y.
Author Affiliation: Edward L. Ginzton Lab., Stanford Univ., CA, USA
Journal: European Physical Journal D vol.18, no.2 p.179-90
Publisher: EDP Sciences; Springer-Verlag,
Publication Date: Feb. 2002 Country of Publication: France
CODEN: EPJDF6 ISSN: 1434-6060
SICI: 1434-6060(200202)18:2L.179:TSPE;1-R
Material Identity Number: G375-2002-003
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: Current **quantum** cryptography systems are limited by the attenuated coherent pulses they use as light sources: a security loophole is opened up by the possibility of multiple-photon pulses. By replacing the source with a single-photon emitter, transmission rates of secure information can be improved. We have investigated the use of single self-assembled InAs/GaAs **quantum** dots as such single-photon sources, and have seen a tenfold reduction in the multi-photon probability as compared to Poissonian pulses. An extension of our experiment should also allow for the generation of triggered, polarization-**entangled** photon pairs. The utility of these light sources is currently limited by the low efficiency with which photons are collected. However, by fabricating an optical microcavity containing a single **quantum** dot, the spontaneous emission rate into a single mode can be enhanced. Using this method, we have seen 78% **coupling** of single-dot radiation into a single cavity resonance. The enhanced spontaneous **decay** should also allow for higher photon pulse rates, up to about 3 GHz. (43 Refs)
Subfile: A
Descriptors: gallium arsenide; III-V semiconductors; indium compounds; **quantum** cryptography; **quantum** optics; semiconductor **quantum** dots; spontaneous emission
Identifiers: triggered single photons; **entangled** photons; **quantum** dot microcavity; **quantum** cryptography; single-photon emitter; transmission rates; secure information; single self-assembled InAs/GaAs **quantum** dots; multi-photon probability; triggered polarization-**entangled** photon pairs; optical microcavity; spontaneous emission rate; single cavity resonance; enhanced spontaneous **decay**; InAs-GaAs
Class Codes: A7865K (Optical properties of II-VI and III-V semiconductors (thin films/low-dimensional structures)); A4250 (Quantum optics); A4230Q (Optical communication)
Chemical Indexing:
InAs-GaAs int - GaAs int - InAs int - As int - Ga int - **In** int - GaAs bin - InAs bin - As bin - Ga bin - **In** bin (Elements - 2,2,3)

101/9/7
DIALOG(R)File 2:INSPEC

08208666 INSPEC Abstract Number: A2002-08-7138-004
Title: Polaron **coupling** in **quantum** dot molecules
Author(s): Verzelen, O.; Ferreira, R.; Bastard, G.
Author Affiliation: Ecole Normale Superieure, Lab. de Phys. de la Matiere Condensee, Paris, France
Journal: Physical Review B (Condensed Matter and Materials Physics) vol.64, no.7 p.075315/1-6
Publisher: APS through AIP,
Publication Date: 15 Aug. 2001 Country of Publication: USA
CODEN: PRBMDO ISSN: 0163-1829
SICI: 0163-1829(20010815)64:7L.1:PCQM;1-E
Material Identity Number: J673-2002-012
U.S. Copyright Clearance Center Code: 0163-1829/2001/64(7)/075315(6)/$20.00
DOI: 10.1103/PhysRevB.64.075315
Document Number: S0163-1829(01)05431-5
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: We report on the calculation of polaron energies in InAs **quantum** dot molecules. Polaron effects are larger in vertical than in lateral molecules. The far infrared **absorption** associated with molecular polaron transitions is calculated. It may show prominent lines associated with inter dot polaron transitions. We have also calculated the polaron relaxation time to thermodynamical equilibrium when its **lifetime** is limited by the **decay** of its phonon component due to crystal anharmonicity. (9 Refs)
Subfile: A
Descriptors: anharmonic lattice modes; III-V semiconductors; indium compounds; infrared spectra; phonon spectra; polarons; semiconductor **quantum** dots
Identifiers: polaron **coupling**; **quantum** dot molecules; polaron energies; InAs; lateral molecules; vertical molecules; far infrared **absorption**; molecular polaron transitions; inter dot polaron transitions; polaron relaxation time; thermodynamical equilibrium; phonon component; crystal anharmonicity
Class Codes: A7138 (Polarons and electron-phonon interactions); A7320D (Electron states in low-dimensional structures); A7830G (Infrared and Raman spectra in inorganic crystals); A6320R (Anharmonic lattice modes); A6322 (Phonons in low-dimensional structures and small particles); A7320M (Collective excitations (surface states)); A7865K (Optical properties of II-VI and III-V semiconductors (thin films/low-dimensional structures))
Chemical Indexing:
InAs bin - As bin - **In** bin (Elements - 2)

101/9/8
DIALOG(R)File 2:INSPEC

08189401 INSPEC Abstract Number: A2002-07-4265G-008, B2002-03-4340G-012
Title: Nonlinearity and response time of 1.55 mu m intersubband **absorption** in InGaAs/AlAs/AlAsSb **coupled quantum** wells
Author(s): Akiyama, T.; Georgiev, N.; Mozume, T.; Yoshida, H.; Gopal, A.V.; Wada, O.
Author Affiliation: The Femtosecond Technol. Res. Assoc., Tsukuba, Japan
Conference Title: Technical Digest. Summaries of papers presented at the Conference on Lasers and Electro-Optics. Postconference Technical Digest (IEEE Cat. No.01CH37170) p.18-19
Publisher: Opt. Soc. America, Washington, DC, USA
Publication Date: 2001 Country of Publication: USA 604+72 post deadline papers pp.
ISBN: 1 55752 662 1 Material Identity Number: XX-2001-01869
Conference Title: CLEO 2001. Technical Digest. Summaries of papers presented at the Conference on Lasers and Electro-Optics. Postconference Technical Digest
Conference Sponsor: IEEE/Lasers & Electro-Opt. Soc.; OSA-Opt. Soc. America; Quantum Electron. Division of the Eur. Phys. Soc.; Opt. Soc. Japanese Quantum Electron. Joint Group
Conference Date: 6-11 May 2001 Conference Location: Baltimore, MD, USA
Language: English Document Type: Conference Paper (PA)
Treatment: Experimental (X)
Abstract: Summary form only given. The demand for the optical nonlinear devices which operate around the optical communication wavelengths has been increasing because of their applicability to the time-domain switching, wavelength conversion, and regeneration. Intersubband (ISB) transition is one of the candidates for that use because it is expected to have an ultrafast response. In this paper, we evaluate the nonlinearity and the response time for the first time in 1.55 mu m ISB **absorption**, which was achieved by InGaAs/AlAs/AlAsSb **coupled quantum** wells.
Subfile: A B
Descriptors: **absorption** coefficients; aluminium compounds; gallium arsenide; III-V semiconductors; indium compounds; optical saturable **absorption**; optical wavelength conversion; **quantum** well devices ; semiconductor **quantum** wells
Identifiers: **coupled quantum** wells; optical nonlinear devices ; time-domain switching; wavelength conversion; regeneration; intersubband transition; response time; intersubband **absorption**; conduction band; transmissivity spectrum; **absorption** saturation; pump-probe measurement; ultrafast **decay** curve; optical confinement factor; nonlinear **absorption** coefficient; ultrafast nonlinear devices; 1.55 micron; InGaAs-AlAs-AlAsSb
Class Codes: A4265G (Optical transient phenomena, self-induced transparency, optical saturation and related effects); A4265K (Optical harmonic generation, frequency conversion, parametric oscillation and amplification); A7865K (Optical properties of II-VI and III-V semiconductors (thin films/low-dimensional structures)); B4340G (Optical saturation and related effects); B2530C (Semiconductor superlattices, quantum wells and related structures); B4340K (Optical harmonic generation, frequency conversion, parametric oscillation and amplification)
Chemical Indexing:
InGaAs-AlAs-AlAsSb int - AlAsSb int - InGaAs int - AlAs int - Al int - As int - Ga int - **In** int - Sb int - AlAsSb ss - InGaAs ss - Al ss - As ss - Ga ss - **In** ss - Sb ss - AlAs bin - Al bin - As bin (Elements - 3,2,3,5)

101/9/11
DIALOG(R)File 2:INSPEC

07362506 INSPEC Abstract Number: A1999-21-7865K-005
Title: Optical **absorption** spectra of a **quantum** dot in a microcavity
Author(s): Andrews, J.T.; Sen, P.; Puri, R.R.
Author Affiliation: Dept. of Appl. Phys., Inst. of Technol. & Sci., Indore, India
Journal: Journal of Physics: Condensed Matter vol.11, no.32 p. 6287-300
Publisher: IOP Publishing,
Publication Date: 16 Aug. 1999 Country of Publication: UK
CODEN: JCOMEL ISSN: 0953-8984
SICI: 0953-8984(19990816)11:32L.6287:OASQ;1-M
Material Identity Number: M789-1999-033
U.S. Copyright Clearance Center Code: 0953-8984/99/326287+14$30.00
Document Number: S0953-8984(99)01321-1
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: Exact **quantum** electrodynamical results are obtained for a semiconductor **quantum** dot placed inside a microcavity of arbitrary photon leakage (K), and radiative (gamma) and nonradiative (gamma /sub c/) **decay** rates. Analytical results are obtained for the density matrix elements. The **absorption** spectra thus obtained for arbitrary values of K, gamma and gamma /sub c/ exhibit the solid-state analogue of the vacuum Rabi splitting when the system **decay** parameters are much smaller than the **quantum** dot-cavity-field **coupling** parameter. Numerical estimates are made for samples of CdS and GaAs **quantum** dots of dimensions 19 AA and 56 AA, respectively. The results are in qualitative agreement with the experimental observations. (34 Refs)
Subfile: A
Descriptors: cadmium compounds; gallium arsenide; II-VI semiconductors; III-V semiconductors; **quantum** electrodynamics; semiconductor **quantum** dots; visible spectra
Identifiers: optical **absorption** spectra; microcavity; **quantum** electrodynamical results; semiconductor **quantum** dot; density matrix elements; vacuum Rabi splitting; QED; CdS; GaAs
Class Codes: A7865K (Optical properties of III-V and II-VI semiconductors (thin films/low-dimensional structures)); A7840G (Visible and ultraviolet spectra of II-VI and III-V semiconductors)
Chemical Indexing:
CdS int - **Cd** int - S int - CdS bin - **Cd** bin - S bin (Elements - 2)
GaAs int - As int - Ga int - GaAs bin - As bin - Ga bin (Elements - 2)

25/9/2 (Item 1 from file: 103)
DIALOG(R)File 103:Energy SciTec

01135210 EDB-83-035222
Title: Optimized four-level lasers
Author(s): Jorgensen, C.K.; **Collins, C.B.**
Affiliation: Geneve, Universite, Geneva, Switzerland
Title: Lasers '80
Conference Title: 3. international conference on lasers and applications
Conference Location: New Orleans, LA, USA Conference Date: 15 Dec 1980
Publisher: STS Press,McLean, VA
Publication Date: 1981
p 343-348
Report Number(s): CONF-801201-
Document Type: Analytic of a Book; Conference literature
Language: English
Journal Announcement: EDB8206
Country of Origin: Switzerland
Country of Publication: United States
Abstract: Although emission should represent the largest possible percentage of the downward transition probabilities of the excited state, highly excited vibrational states of UO/sub 2/(plus 2) or other broad electron transfer bands may serve as the final state. Other unexploited degrees of freedom are transitions from a luminescent level with S(2) of a lanthanine that is antiferromagnetically **coupled** to other spin **quantum** number S values, in either crystalline or vitreous oxygen-containing compounds. The same chemical bonding through oxygen bridges also favors energy transfer, pumping E(3).;
Major Descriptors: *STIMULATED EMISSION -- ENERGY LEVELS
Descriptors: ANTIFERROMAGNETISM; CHEMICAL BONDS; ELECTRON TRANSFER; ENERGY CONVERSION; ENERGY TRANSFER; LUMINESCENCE; OPTIMIZATION; OSCILLATIONS; POPULATION INVERSION; URANIUM OXIDES
Broader Terms: ACTINIDE COMPOUNDS; CHALCOGENIDES; CONVERSION; EMISSION; ENERGY-LEVEL TRANSITIONS; MAGNETISM; OXIDES; OXYGEN COMPOUNDS; URANIUM COMPOUNDS
Subject Categories: 420300* -- Engineering -- Lasers -- (-1989)

54/9/4 (Item 4 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

09021373 E.I. No: EIP02126890245
Title: Continuous-variable quantum teleportation through lossy channels
Author: Chizhov, A.V.; Knoll, L.; Welsch, D.-G.
Corporate Source: Bogoliubov Lab. of Theoretical Phys. Joint Inst. for Nuclear Research, 141980 Dubna, Moscow Region, Russian Federation
Source: Physical Review A. Atomic, Molecular, and Optical Physics v 65 n 2 February 2002. p 022310/1-022310/9
Publication Year: 2002
CODEN: PLRAAN ISSN: 1050-2947
Language: English
Document Type: JA; (Journal Article) Treatment: T; (Theoretical); X; (Experimental)
Journal Announcement: 0203W4
Abstract: In continuous-variable single-mode quantum teleportation, it is commonly assumed that Alice and Bob share a strongly squeezed two-mode squeezed vacuum (TMSV). This scheme was analyzed, with emphasis on the absorption losses that are unavoidably associated with the transmission of the two modes over finite distances. In particular, the general formulas derived to the problem of teleporting squeezed states and number state were applied. The results show that the TMSV state as an effectively macroscopic **entangled quantum** state rapidly **decays**, and thus proper quantum teleportation is only possible over distances that are much shorter than the absorption length. (Edited abstract) 25 Refs.
Descriptors: *Quantum optics; **Light absorption**; Optical fibers; Electromagnetic wave propagation; Vacuum; Quantum theory; Coherent light; Light transmission; Low temperature effects; Numerical methods; Probability; Electromagnetic dispersion; Functions
Identifiers: Continuous variable quantum teleportation; Lossy channels; Monochromatic optical field; Squeezed states; Quantum state; Wigner function
Classification Codes:
741.1.2 (Fiber Optics)
741.1 (Light & Optics); 931.1 (Mechanics); 711.1 (Electromagnetic Waves in Different Media); 633.1 (Vacuum Applications); 641.1 (Thermodynamics)
741 (Light, Optics & Optical Devices); 931 (Applied Physics Generally); 711 (Electromagnetic Waves); 633 (Vacuum Technology); 641 (Heat & Mass Transfer; Thermodynamics)
74 (LIGHT & OPTICAL TECHNOLOGY); 93 (ENGINEERING PHYSICS); 71 (ELECTRONICS & COMMUNICATION ENGINEERING); 63 (FLUID FLOW; HYDRAULICS, PNEUMATICS & VACUUM); 64 (HEAT & THERMODYNAMICS)

54/9/5 (Item 5 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

08875396 E.I. No: EIP01346622478
Title: Propagation of **entangled** light pulses through dispersing and absorbing channels
Author: Chizhov, A.V.; Schmidt, E.; Knoll, L.; Welsch, D.-G.
Corporate Source: Joint Institute for Nuclear Research Bogoliubov Lab. of Theor. Physics, 141980 Dubna, Moscow Region, Russian Federation
Source: Journal of Optics B: Quantum and Semiclassical Optics v 3 n 3 June 2001. p 77-83
Publication Year: 2001
CODEN: JOBOFD ISSN: 1464-4266
Language: English
Document Type: JA; (Journal Article) Treatment: T; (Theoretical)
Journal Announcement: 0108W4
Abstract: The problem of decorrelation of **entangled** (squeezed-vacuum-type) light pulses of arbitrary shape passing through dispersive and absorbing four-port devices of arbitrary frequency response is studied, applying recently obtained results on quantum-state transformation (L Knoll et al 1999 Phys. Rev. A 59 4716). The fidelity and indices of (quantum) correlation based on the von Neumann entropy are calculated, with special emphasis on the dependence on the mean photon number, the pulse shape and the frequency response of the devices. In particular, it is shown that the quantum correlations can **decay** very rapidly due to dispersion and absorption, and the degree of degradation intensifies with increasing mean photon number. 36 Refs.
Descriptors: *Quantum theory; **Light** propagation; **Photons**; **Light absorption**; **Electron energy** levels; Electromagnetic field effects; Frequency response; Refractive index
Identifiers: **Entangled** light pulses; **Quantum** correlation
Classification Codes:
931.4 (Quantum Theory); 741.1 (Light & Optics); 931.3 (Atomic & Molecular Physics); 701.1 (Electricity, Basic Concepts & Phenomena); 701.2 (Magnetism, Basic Concepts & Phenomena)
931 (Applied Physics Generally); 741 (Light, Optics & Optical Devices); 701 (Electricity & Magnetism)
93 (ENGINEERING PHYSICS); 74 (LIGHT & OPTICAL TECHNOLOGY); 70 (ELECTRICAL ENGINEERING, GENERAL)

54/9/10 (Item 4 from file: 103)
DIALOG(R)File 103:Energy SciTec

04795336 AIP
Title: Coherent Control of an Atomic Collision in a Cavity
Author(s): Osnaghi, S.; Bertet, P.; Auffeves, A.; Maioli, P.; Brune, M.; Raimond, J. M.; Haroche, S.
Sponsoring Organization: (US)
Publisher: The American Physical Society
Physical Review Letters
Source: Physical Review Letters ; VOL. 87 ; ISSUE: 3 ; DOI: 10.1103/PhysRevLett.87.037902; Othernumber: PRLTAO000087000003037902000001; 053127PRL; PBD: 16 Jul 2001 ISSN: 0031-9007
Publication Date: 20010716
Report Number(s): NONE
OSTI Number(s): DE40277140
Contract Number (Non-DOE): TRN IM200111%%307
Document Type: JOURNAL ARTICLE
Language: English
Medium/Dimensions: page(s) 037902-037902-4
Country of Publication: United States
Abstract: Following a recent proposal by S.B. Zheng and G.C. Guo[Phys.Rev.Lett. 85, 2392 (2000)], we report an experiment in which two Rydberg atoms crossing a nonresonant cavity are **entangled** by coherent **energy** exchange. The process, mediated by the virtual emission and **absorption** of a microwave **photon**, is characterized by a collision mixing angle 4orders of magnitude larger than for atoms colliding in free space with the same impact parameter. The final **entangled** state is controlled by adjusting the atom-cavity detuning. This procedure, essentially insensitive to thermal fields and to photon **decay**, opens promising perspectives for complex **entanglement** manipulations.
Descriptors: ABSORPTION; ATOMS; **DECAY**; ENERGY TRANSFER; IMPACT PARAMETER; PHOTONS
Subject Categories: 72 -- PHYSICS OF ELEMENTARY PARTICLES & FIELDS

L70 ANSWER 21 OF 33 HCAPLUS COPYRIGHT ACS on STN
AN 1983:8657 HCAPLUS
DN 98:8657
OREF 98:1385a,1388a
TI Observation of new spontaneous fission activities from elements 100 to 105
AU Somerville, L. P.
CS Lawrence Berkeley Lab., Berkeley, CA, USA
SO Report (**1982**), LBL-14050; Order No. DE82013004, 137 pp. Avail.: NTIS
From: Energy Res. Abstr. **1982**, 7(19), Abstr. No. 52190
DT Report
LA English
AB Several new spontaneous fission (SF) activities were found. No definite identification could be made for any of the new SF activities; however, **half-lives** and possible assignments to element-104 **isotopes** consistent with several cross **bombardments** include 257Rf(3.8 s, 14% SF), 258Rf(13 ms), 259Rf(.apprx.3 s, 8% SF), 260Rf(.apprx.20 ms), and 262Rf(.apprx.50 ms). The 80-ms SF activity claimed by the Dubna group for the discovery of element 104 (260104) was not observed A difficulty exists in the interpretation that 260Rf is a .apprx. 20-ms SF activity; in order to be correct, for example, the SF activities with **half-lives** between 14 and 24 ms produced in the reactions 109- to 119-MeV 18O + 248Cm, 88- to 100-MeV 15N + 249Bk, and 96-MeV 18O + 249Cf must be other **nuclides** due to their large production cross sections, or the cross sections for production of 260Rf must be enhanced by unknown mechanisms. Based on calculated total production cross sections a possible .apprx.1% electron-capture branch in 258Lr(4.5 s) to the SF emitter 258No(1.2 ms) and an upper limit of 0.05% for SF branching in 254No(55 s) were determined Other measured half-lives from unknown nuclides produced in resp. reactions include .apprx.1.6 s (18O + 248Cm), indications of a .apprx.47-s SF activity (75-MeV 12C + 249Cf), and 2 or more SF activities with 3 s $\leq$ T1/2 $\leq$ 60 s (18O + 249Bk). If the tentative assignments to even-even element 104 isotopes are correct, there would be a **sudden change in the SF half-life systematics at element 104** which has been predicted **theor.** and attributed to the disappearance of the 2nd hump of the double-humped fission barrier.
IT Heavy-ion beams
(collisions of, production of spontaneous fission activities in)
IT Fission
(spontaneous, production of very heavy nuclei undergoing, in heavy-ion collisions)
IT 14390-96-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(berkelium-249 **bombardment** by, production of spontaneous fission activities in)

L98 ANSWER 2 OF 5 HCAPLUS COPYRIGHT ACS on STN
AN 2003:898686 HCAPLUS
DN 140:205825
ED Entered STN: 18 Nov 2003
TI "Forced-gamma emission" studies involving **nuclear isomers** using fast neutrons and bremsstrahlung x rays
AU Guardala, N. A.; Price, J. L.; Barkyoumb, J. H.; Abbundi, R. J.; Merkel, G.; Carroll, J. J.
CS NSWC/Carderock Division, Bethesda, MD, 20817-5700, USA
SO AIP Conference Proceedings (**2003**), 680(Application of Accelerators in Research and Industry), 279-282
CODEN: APCPCS; ISSN: 0094-243X
PB American Institute of Physics
DT Journal; General Review
LA English
CC 70-0 (Nuclear Phenomena)
AB A review. The authors propose to perform expts. involving **nuclear isomers** to study the **probabilities** and mechanisms of **deexcitation** of the **isomeric** level down to the ground state upon exposure to external radiation such as fast neutrons and bremsstrahlung x-rays. The **isomers** have **half- lives** .apprx.1 h to 10 days which is a convenient time scale to measure statistically meaningful **changes** in the specific activities of the **isomeric** state. Also, the selected **isomers** are relatively easy to produce in the laboratory in sufficient quantities so that they can be made in a reasonable time frame and without recourse to any exotic means of production, handling or preparation and without the need for high-purity separated **isotopes** as the feedstock. Probably studies undertaken in this fashion will produce fundamentally valuable information on the factors which govern and influence forced-gamma emission in **nuclear isomers**. This type of information will potentially be very useful in similar studies involving longer-lived **isomers** such as: 178m2Hf, 242mAm and 108mAg which have the potential to be used in various emerging new technologies in the later part of the 21st Century.
ST review **nuclear isomer** deexcitation neutron bremsstrahlung x ray
IT **Nuclear** energy level
(**isomer**; "Forced-gamma emission" studies involving **nuclear isomers** using fast neutrons and bremsstrahlung x-rays)
IT Bremsstrahlung
(x-ray; "Forced-gamma emission" studies involving **nuclear isomers** using fast neutrons and bremsstrahlung x-rays)
IT 12586-31-1, Neutron
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
("Forced-gamma emission" studies involving **nuclear isomers** using fast neutrons and bremsstrahlung x-rays)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
(1) Ahmad, I; Phys Rev Lett 2001, V87, P07253
(2) Belic, D; Phys Rev Lett 2000, V83, P5242
(3) Evans, R; The Atomic Nucleus 1955, P229
(4) Marmier, P; Physics of Nuclei and Particles 1969, V1, P414

L101 ANSWER 1 OF 3 HCAPLUS COPYRIGHT ACS on STN
AN 2005:276977 HCAPLUS
DN 144:285228
TI Nuclear resonance spectroscopy of the 31-yr isomer of Hf-178
AU **Collins, C. B.**; Zoita, N. C.; Davanloo, F.; Yoda, Y.; Uruga, T.; Pouvesle, J. M.; Popescu, I. I.
CS Center for Quantum Electronics, University of Texas at Dallas, Richardson, TX, 75083-0688, USA
SO Laser Physics Letters (**2005**), 2(3), 162-167
CODEN: LPLABC; ISSN: 1612-2011
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 65, 71
AB Induced release of the high energy densities stored in **isomeric nuclear** states may be important in the development of ultrashort wavelength lasers. Such a release could compensate the spontaneous power d. radiated from the laser medium at threshold. The most promising candidate for such a role seems to be the 31-yr **isomeric nucleus** of Hf-178 that stores 1.3 GJ/g in the electromagnetic excitation of its constituent protons and neutrons. Successful studies of the induced release of energies from such isomeric states have required an extension of techniques for nuclear resonance spectroscopy using synchrotron radiation (SR) that had previously been applied only to ground state materials. **In 2004**, monochromatic x-rays from the SPring-8 SR source were used to identify one of the excited nuclear states that mediates the induced decay of the 31-yr isomer of Hf-178. That trigger level was found to lie at 2457.20(22) keV. It was excited when an **isomeric nucleus absorbed an incident x-ray photon.** One branch of its subsequent decay consisted of a strong electromagnetic transition to the ground state of the nucleus. The energy of the γ-photon emitted was equal to the energy of the trigger level. Proximity in energy of that level to the energy of 2446.06 keV stored by the isomer makes it easy to induce a release of the stored energy and encourages prospects for the development of a **gamma ray** laser.
ST hafnium **isomer nuclear** resonance spectroscopy
IT Ground state
Nuclear energy level
Photon
X-ray
(nuclear resonance spectroscopy of 31-yr **isomeric nucleus** of hafnium-178 in electromagnetic excitation of its constituent protons and neutrons)
IT 14265-77-1, Hafnium-178, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(nuclear resonance spectroscopy of 31-yr **isomeric nucleus** of hafnium-178 in electromagnetic excitation of its constituent protons and neutrons)
IT 12586-31-1, Neutron 12586-59-3, Proton 14041-52-2, Ytterbium-172, reactions 14733-03-0, Bismuth-214, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(nuclear resonance spectroscopy of 31-yr **isomeric nucleus** of hafnium-178 in electromagnetic excitation of its constituent protons and neutrons)

L101 ANSWER 3 OF 3 HCAPLUS COPYRIGHT ACS on STN
AN 1964:466785 HCAPLUS
DN 61:66785
OREF 61:11555c-d
TI The production of long-lived **isomers** by the use of the electron linear accelerator and its application
AU Kaminishi, Tokishi; Kojima, Chiyo
CS Govt. Ind. Res. Inst., Nagoya, Japan
SO Nippon Aisotopu Kaigi Hobunshu (**1961**), Volume 4, 549-53
From: Nucl. Sci. Abstr. 17(18), Abstr. No. 29953(1963).
CODEN: NAKHAC
DT Report
LA Unavailable
CC 12 (Nuclear Phenomena)
AB A number of natural elements were irradiated with e or converted photons with a 6 m.e.v. e linear accelerator. In this case the type of reaction is (. **gamma.**,**γ**), in which **nuclides absorb** x-rays resonantly and become **isomers**. A water-cooled Pb target is used as an x-ray converter. After the irradiation, the **isomeric nuclide** is determined by measuring its **half-life** and the energy spectrum of the γ-transitions. The production of the following **isomers** is confirmed: 87Srm, 89Ym, 103Rhm, 107Agm + 109Agm, 111Cdm, 113Inm, 115Inm, 117Snm, 135Bam, 137Bam, 179Hfm, 195Ptm, 197Aum, and 199Hgm. The **half-lives** range between the 7 sec. and 14 days.
IT Gamma rays
(**nuclear isomer** production by)
IT 7440-22-4P, Silver
RL: PREP (Preparation)
(formation of metastable, by γ-rays)
IT 7440-16-6P, Rhodium
RL: PREP (Preparation)
(formation of 103Rhm, by γ-ray action)
IT 7440-65-5, Yttrium
(gamma ray bombardment of 89Y, 89Ym from)
IT 7440-57-5P, Gold
RL: PREP (Preparation)
(photo-production of mestastable 197Au)
IT 13982-64-4P, Strontium, **isotope** of mass 87 14191-71-0P, Indium, **isotope** of mass 115 14885-78-0P, Indium, **isotope** of mass 113
RL: PREP (Preparation)
(photoproduction of metastable)

L145 ANSWER 6 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 2004:456008 HCAPLUS
DN 142:226735
TI **Electromagnetic coupling** of the **isomer** and ground state in 176Lu
AU Stedile, F.; Burnett, J.; Carroll, J. J.; von Carrel, H.; Kaeppeler, F.; Kneissl, U.; Kohstall, C.; von Neumann-Cosel, P.; Pitz, H. H.; Propri, R.; Scheck, M.; Ugorowski, P.; Walter, S.; Wisshak, K.
CS Institut fuer Strahlenphysik, Universitaet Stuttgart, Stuttgart, Germany
SO Laser Physics (**2004**), 14(4), 442-447
CODEN: LAPHEJ; ISSN: 1054-660X
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB The odd-odd **isotope** 176Lu has a **half-life** of 4.08 + 1010 **years**, undergoing a β **decay** to 176Hf. Since its formation is unambiguously s-process neutron capture, it long has been viewed as a possible s-process chronometer. However, due to a temperature-dependent coupling between the ground state and an **isomer** at 123 keV in the stellar photon bath, 176Lu might be an s-process thermometer instead. Starting with the astrophys. background, preliminary results from two NRF expts., performed at the 4.3 MeV Stuttgart Dynamitron accelerator, will be reported. Furthermore, first results from photoactivation expts. on 176Lu will be presented.
IT Timers
(Lu nucleosynthesis s-process chronometer and thermometer)
IT Nuclear ground state
(electromagnetic coupling of the **isomer** and ground state in 176Lu)
IT **Gamma ray** interactions
(electromagnetic **coupling** of the **isomer** and ground state in 176Lu and photoactivation)
IT **Nuclear energy level**
(**isomer**; electromagnetic coupling of the **isomer** and ground state in 176Lu)
IT Nucleosynthesis
Thermometers
(176Lu nucleosynthesis s-process chronometer and thermometer)
IT 14452-47-2, Lutetium 176, properties 378764-40-0, Lu-176m, properties
RL: GOC (Geological or astronomical occurrence); GPR (Geological or astronomical process); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); OCCU (Occurrence); PROC (Process)
(electromagnetic coupling of the **isomer** and ground state in 176Lu and photoactivation)
RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L145 ANSWER 7 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 2004:284461 HCAPLUS

DN 141:13028

TI 136Ba studied via deep-inelastic collisions: identification of the (νh11/2)10+-2 **isomer**

AU Valiente-Dobon, J. J.; Regan, P. H.; Wheldon, C.; Wu, C. Y.; Yoshinaga, N.; Higashiyama, K.; Smith, J. F.; Cline, D.; Chakrawarthy, R. S.; Chapman, R.; Cromaz, M.; Fallon, P.; Freeman, S. J.; Goergen, A.; Gelletly, W.; Hayes, A.; Hua, H.; Langdown, S. D.; Lee, I. Y.; Liang, X.; Macchiavelli, A. O.; Pearson, C. J.; Podolyak, Zs.; Sletten, G.; Teng, R.; Ward, D.; Warner, D. D.; Yamamoto, A. D.

CS Department of Physics, University of Surrey, Guildford, GU2 7XH, UK

SO Physical Review C: Nuclear Physics (**2004**), 69(2), 024316/1-024316/13
CODEN: PRVCAN; ISSN: 0556-2813

PB American Physical Society

DT Journal

LA English

AB A multinucleon transfer reaction between a thin self-supporting 198Pt target and an 850-MeV 136Xe beam was used to populate and study the structure of the N = 80 isotone 136Ba. Making use of time-correlated . **gamma.-ray** spectroscopy, evidence for an Iπ = (10+) **isomeric** state was found with a measured **half- life** of 91 ± 2 ns. Prompt-delayed correlations also enabled the tentative measurement of the near-yrast states which lie above the **isomer**. Shell-model calcns. suggest that the **isomer** has a structure which can be assigned predominantly as (νh11/2)10+-2. The results are discussed in terms of standard and pair-truncated shell-model calcns., and compared to the even-Z N = 80 isotones ranging from 130Sn to 148Er. A qual. explanation of the observed dramatic **decrease** in the B(E2: 10+ → 8+) value for the N = 80 isotones at 136Ba is given in terms of the increasing single-hole energy of the h11/2 neutron configuration as the proton subshell is filled. The angular momentum transfer to the binary fragments in the reaction was also investigated in terms of the average total **γ-ray** fold vs. the scattering angle of the recoils.

IT **Nuclear energy level**
(**isomer**; structure of 136Ba populated in 198Pt + 136Xe collisions, including (νh11/2)10+-2 **isomer** and near-yrast states, and studied using time-correlated **gamma-ray** spectroscopy)

IT **Gamma ray**
Nuclear energy level
Nuclear transition
(structure of 136Ba populated in 198Pt + 136Xe collisions, including (νh11/2)10+-2 **isomer** and near-yrast states, and studied using time-correlated **gamma-ray** spectroscopy)

IT 15125-64-1, Barium-136, properties
(structure of 136Ba populated in 198Pt + 136Xe collisions, including (νh11/2)10+-2 **isomer** and near-yrast states, and studied using time-correlated **gamma-ray** spectroscopy)

IT 15751-79-8, Xenon-136, reactions 15756-63-5, Platinum-198, reactions
(structure of 136Ba populated in 198Pt + 136Xe collisions, including (νh11/2)10+-2 **isomer** and near-yrast states, and studied using time-correlated **gamma-ray** spectroscopy)

L145 ANSWER 8 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 2004:237715 DN 141:13007

TI Unambiguous identification of three β-decaying **isomers** in 70Cu

AU Van Roosbroeck, J.; Guenaut, C.; Audi, G.; Beck, D.

SO Physical Review Letters (**2004**), 92(11), 112501/1-112501/4
CODEN: PRLTAO; ISSN: 0031-9007

LA English

AB Using resonant laser ionization, β-decay studies, and for the first **time** mass measurements, three β-**decaying** states were identification unambiguously in 70Cu. A mass excess of -62,976.1(1.6) keV and a **half-life** of 44.5(2) s for the (6-) ground state were determined The level energies of the (3-) **isomer** at 101.1(3) keV with T1/2 = 33(2) s and the 1+ **isomer** at 242.4(3) keV with T1/2 = 6.6(2) s were confirmed by high-precision mass measurements. The low-lying levels of 70Cu populated in the decay of 70Ni and in transfer reactions compared well with large-scale shell-model calcns., and the wave functions appear to be dominated by one proton-one neutron configurations outside the closed Z = 28 shell and N = 40 subshell. This does not apply to the 1+ state at 1980 keV which exhibits a particular feeding and **deexcitation** pattern not reproduced by the shell-model calcns.

IT Beta decay
(identification of three β-decaying **isomers** in 70Cu using resonant laser ionization, β-decay studies and mass measurements and determination of level energies and **half-lives**)

IT **Nuclear energy level**
(**isomer**; identification of three β-decaying **isomers** in 70Cu using resonant laser ionization, β-decay studies and mass measurements and determination of level energies and **half-lives** for)

IT **Nuclear energy level**
(low-lying levels of 70Cu populated in decay of 70Ni and in transfer reactions compared with large-scale shell model calcns.)

IT Nuclear model
(shell; low-lying levels of 70Cu populated in decay of 70Ni and in transfer reactions compared with large-scale shell model calcns.)

IT 460342-87-4, properties 683752-62-7, properties 683752-86-5, properties
(identification of three β-decaying **isomers** in 70Cu using resonant laser ionization, β-decay studies and mass measurements and determination of level energy and **half-life** for)

IT 29675-28-3, Copper-70, properties
(identification of three β-decaying **isomers** in 70Cu using resonant laser ionization, β-decay studies and mass measurements and determination of mass excess and **half-life** of ground state)

IT 36378-25-3, Nickel-70, reactions
(low-lying levels of 70Cu populated in decay of 70Ni and in transfer reactions compared with large-scale shell model calcns.)

L145 ANSWER 9 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 2004:64009 HCAPLUS

DN 141:29440

TI Lifetime of a new high-spin **isomer** in 150Dy

AU Watanabe, H.; Wakabayashi, Y.; Gono, Y.; Fukuchi, T.; Ueno, H.; Sato, W.; Yoshimi, A.; Kameda, D.; Miyoshi, H.; Kishida, T.; Kobayashi, Y.; Morikawa, T.; Motomura, S.; Kashiyama, O.; Saito, K.; Odahara, A.; Asahi, K.

CS The Institute of Physical and Chemical Research (RIKEN), Wako, Saitama, 351-0198, Japan

SO European Physical Journal A: Hadrons and Nuclei (**2004**), 19(2), 163-167
CODEN: EPJAFV; ISSN: 1434-6001

PB Societa Italiana di Fisica

DT Journal

LA English

AB A new high-spin **isomer** in 150Dy has been observed at an excitation energy of 10.3 MeV by combining the inverse-kinematic reaction induced by a pulsed beam of 132Xe and the **γ-ray** recoil-shadow technique. The **half-life** of this **isomeric** state has been determined to be T1/2 = 1.6 ± 0.6 ns using the conventional centroid-shift method with the 141Pr(16O,p6n)150Dy reaction at 165 MeV. The **mechanism** producing high-spin **isomers** in N = 83,84 isotones is qual. discussed in terms of the difference of the neutron particle-hole configuration between the high-spin **isomer** and the lower-lying state.

IT **Nuclear energy level**
(**isomer**; lifetime of a new high-spin **isomer** in 150Dy)

IT **Gamma ray**
Nuclear energy level
(of dysprosium 150)

IT 15055-17-1, Dysprosium 150, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(lifetime of a new high-spin **isomer** in 150Dy)

IT 7440-10-0, Praseodymium, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(new high-spin **isomer** in 150Dy from 141Pr(16O,p6n)150Dy reaction)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L145 ANSWER 10 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 2003:44444 HCAPLUS

DN 138:176536

TI First observation of the ν9/2[404] orbital in the A .apprx. 100 mass region

AU Urban, W.; Pinston, J. A.; Rzaca-Urban, T.; Zlomaniec, A.; Simpson, G.; Durell, J. L.; Phillips, W. R.; Smith, A. G.; Varley, B. J.; Ahmad, I.; Schulz, N.

CS Institute of Experimental Physics, Warsaw University, Warsaw, 00-681, Pol.

SO European Physical Journal A: Hadrons and Nuclei (**2003**), 16(1), 11-15
CODEN: EPJAFV; ISSN: 1434-6001

PB Springer-Verlag

DT Journal

LA English

AB A new band, populated by the spontaneous fission of 248Cm and studied by means of prompt **γ-ray** spectroscopy using the EUROGAM2 array, was observed in 99Zr. The 1038.8 keV band head with a **half-life** T1/2 = 54(10) ns is interpreted as a K-**isomer**, corresponding to the 9/2[404] neutron-hole excitation. It is the first observation of this orbital in the mass A .apprx. 100 region. The quadrupole moment, Q0 = 3.9(3) eb deduced for the new band indicates a large deformation of β = 0.41, which is produced by a specific shape-coexistence **mechanism**, known in other regions and now found in the A .apprx. 100 nuclei.

IT **Nuclear energy level**
(**isomer**; of zirconium 99)

IT **Gamma ray**
Nuclear energy level
Quadrupole moment
(of zirconium 99)

IT 22453-71-0, Zirconium 99, properties
RL: PRP (Properties)
(nuclear level and quadrupole moment of)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L145 ANSWER 12 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 2001:303858 HCAPLUS
DN 135:37797
TI Conversion electron measurements of **isomeric** transitions in 130,132Te and 134Xe
AU Genevey, J.; Pinston, J. A.; Foin, C.; Rejmund, M.; Casten, R. F.; Faust, H.; Oberstedt, S.
CS Institut des Sciences Nucleaires IN2P3-CNRS/Universite Joseph Fourier, Grenoble, F-38026, Fr.
SO Physical Review C: Nuclear Physics (**2001**), 63(5), 054315/1-054315/6
CODEN: PRVCAN; ISSN: 0556-2813
PB American Physical Society
DT Journal
LA English
AB Microsecond **isomers** in 130,132Te and 134Xe are investigated. These nuclei were produced by thermal neutron induced fission of 239Pu and 241Pu. The detection is based on time correlation between fission fragments selected by the LOHENGRIN spectrometer at ILL (Grenoble) and the **γ-rays** or conversion electrons from **isomers**. The 10+ → 8+ **isomeric** transition of 132Te and 134Xe was measured for the first time and the **half- life** of the analogous transition in 130Te was remeasured. The systematic behavior of the B(E2) values of this **isomeric** transition is studied in Sn, Te, Xe and Ba **isotopes** close to 132Sn. A simple **mechanism** is proposed to explain the strong increase in the B(E2) strengths from the Sn to the Te isotones.
IT Electron internal conversion
Gamma ray
(conversion electron and **gamma-ray** measurements of microsecond **isomeric** transitions in 130,132Te and 134Xe and **mechanism** proposed for strong increase in B(E2) strengths from Sn to Te isotones)
IT **Nuclear energy level**
(**isomer**; conversion electron and **gamma-ray** measurements of microsecond **isomeric** transitions in 130,132Te and 134Xe and **mechanism** proposed for strong increase in B(E2) strengths from Sn to Te isotones)
IT **Nuclear** transition
(**isomeric**; conversion electron and **gamma-ray** measurements of microsecond **isomeric** transitions in 130,132Te and 134Xe and **mechanism** proposed for strong increase in B(E2) strengths from Sn to Te isotones)
IT 14234-28-7, tellurium-132, properties 14390-76-2, tellurium-130, properties 15751-43-6, xenon-134, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(conversion electron and **gamma-ray** measurements of microsecond **isomeric** transitions in 130,132Te and 134Xe and **mechanism** proposed for strong increase in B(E2) strengths from Sn to Te isotones)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L145 ANSWER 13 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 2001:151622 HCAPLUS
DN 134:272018
TI Photon cross sections for resonant **deexcitation** of **nuclear isomers** as a precursor to a **gamma-ray** laser
AU Karamian, S. A.; Carroll, J. J.
CS Joint Institute for Nuclear Research, Dubna, 414980, Russia
SO Laser Physics (**2001**), 11(1), 23-25
CODEN: LAPHEJ; ISSN: 1054-660X
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB Integrated cross sections (ICS) for triggered decay of **nuclear isomers** have recently become accessible in exptl. studies that were motivated both by general phys. interest and by applications, such as a possible **gamma-ray** laser. **Theor.** predictions for ICS are reviewed here and an equation is derived based on the Blatt-Weisskopf probability for an electromagnetic transition between two nuclear levels. This formula is effectively equivalent to the recognized Breit-Wigner expression despite their development from essentially different approaches. The results of a recent high-sensitivity experiment on the 180Tam **isomer deexcitation** induced by bremsstrahlung are analyzed in this context. An important parameter of the **deexcitation** branch **probability** is determined now over a wide energy range from 1 to 10 MeV, including previously reported results.
IT **Nuclear energy level**
(**isomer**; photon cross sections for resonant **deexcitation** of **nuclear isomers** as a precursor to a **gamma-ray** laser)
IT **Gamma ray** interactions
Gamma ray lasers
Nuclear transition
(photon cross sections for resonant **deexcitation** of **nuclear isomers** as a precursor to a **gamma-ray** laser)
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L145 ANSWER 14 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 2001:136150 HCAPLUS
DN 134:286296
TI Investigation of the Kπ=8- **isomer** in 132Ce
AU Morek, T.; Srebrny, J.; Droste, Ch.; Kowalczyk, M.; Rzaca-Urban, T.; Starosta, K.; Urban, W.; Kaczarowski, R.; Ruchowska, E.; Kisielinski, M.; Kordyasz, A.; Kownacki, J.; Palacz, M.; Wesolowski, E.; Gast, W.; Lieder, R. M.; Bednarczyk, P.; Meczynski, W.; Styczen, J.
CS Institute of Experimental Physics, Warsaw University, Warsaw, 00-681, Pol.
SO Physical Review C: Nuclear Physics (**2001**), 63(3), 034302/1-034302/6
CODEN: PRVCAN; ISSN: 0556-2813
PB American Physical Society
DT Journal
LA English
AB The decay of the Kπ=8- **isomer** in 132Ce with an excitation energy of 2340.2 keV has been investigated using the 120Sn(16O,4n)132Ce reaction. A **half-life** of 9.4±0.3 ms was determined Two new decay paths have been found in the **deexcitation** of this **isomer**. The hindrance factors for the E1, M2, and E3 transitions **deexciting** the **isomer** have been determined The decay properties of the 8- **isomers** in the N=74 isotones are discussed. A band mixing **mechanism** involving the ground state and s band seems to be responsible for the behavior of the reduced hindrance factors of the E1 transitions **deexciting** the Kπ=8- **isomers** in these isotones. A K mixing, characteristic of the axially asym. nuclei, may account for the reduced hindrance factors of the E3 transitions to the 5γ+ states in 130Ba and 132Ce.
IT **Nuclear energy level**
(**isomer**; decay of the Kπ=8- **isomer** in 132Ce with excitation energy of 2340.2 keV has been investigated using 120Sn(16O,4n)132Ce reaction)
IT 12586-31-1, Neutron
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(decay of the Kπ=8- **isomer** in 132Ce with excitation energy of 2340.2 keV has been investigated using 120Sn(16O,4n)132Ce reaction)
IT 15757-92-3, Cerium 132, properties
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(decay of the Kπ=8- **isomer** in 132Ce with excitation energy of 2340.2 keV has been investigated using 120Sn(16O,4n)132Ce reaction)
IT 7782-44-7, Oxygen, reactions 14119-17-6, Tin 120, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(decay of the Kπ=8- **isomer** in 132Ce with excitation energy of 2340.2 keV has been investigated using 120Sn(16O,4n)132Ce reaction)
RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L145 ANSWER 15 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 1999:711009 HCAPLUS

DN 132:16846

TI Concerning two-step optical pumping of a **gamma** laser at the Mossbauer transition

AU Antropov, A. E.; Gruzdov, K. A.; Dubensky, A. P.; Lasarev, V. V.

CS Nauchno-Issled. Inst. Fiz., St.-Petersburg. Gos. Univ., St.Petersburg, Russia

SO Izvestiya Akademii Nauk, Seriya Fizicheskaya (**1999**), 63(6), 1203-1208
CODEN: IRAFEO; ISSN: 1026-3489

PB Nauka

DT Journal

LA Russian

AB The authors analyzed the fast step of the 2-step pumping **mechanism** from the point of view of photo-nuclear reactions. At least for **nuclides** with low-lying **isomers** there is a low probability of satisfactory response for the material parameters. Anal. of the spectroscopic information for these nuclides does not conflict with this conclusion, but at the same time allows isolation of some nuclides for exptl. studies of dielec.-excited **isomers** due to resonance **absorption** of hard **x-ray radiation.**

IT **Gamma ray** lasers
Mossbauer effect
Optical pumping
(two-step optical pumping of **gamma** laser at Mossbauer transition)

IT Radionuclides, properties
RL: PRP (Properties)
(two-step optical pumping of **gamma** laser at Mossbauer transition)

L145 ANSWER 17 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1999:252995 HCAPLUS
DN 130:343626
TI Decay of K-**isomers** studied by the tilted axis cranking
AU Shimizu, Yoshifumi R.; Ohtsubo, Shin-Ichi
CS Department of Physics, Kyushu University, Fukuoka, 812, Japan
SO Perspectives in Heavy Ion Physics, Japan-Italy Joint Symposium '97, 3rd, Padova, **Oct. 13-15, 1997 (1999), Meeting Date 1997**, 70-79. Editor(s): Signorini, Cosimo; Soramel, Francesca; Kishida, Takashi. Publisher: World Scientific, Singapore, Singapore.
CODEN: 67LVA5
DT Conference; General Review
LA English
AB A review with 11 refs. Recent measurement of direct transitions from K **isomers** to low-K bands revealed that the K-selection rule is severely broken. This problem is studied as a tunneling process by a simple model taking into account 2 different K-violating **mechanisms** corresponding to the γ-softness and the spin-orientation. Previous systematic calcn. including the **.gamma** .-degrees of freedom explains many of the observed partial **decay** life-**times**. In this talk the other degrees of freedom were investigated by the tilted axis cranking method, and compared with the result of the γ-degrees of freedom. The height of potential barrier is much lower in the calcn. of the tilted axis cranking, which indicates the mass parameter for the spin-orientation degrees of freedom is much larger than that for the quadrupole-deformation degrees of freedom.
IT Nuclear model
Nuclear transition
(decay of K-**isomers** studied by tilted axis cranking)
IT **Nuclear energy level**
(**isomer**; decay of K-**isomers** studied by tilted axis cranking)

L145 ANSWER 18 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 1999:177510 HCAPLUS

DN 130:302468

TI **De-excitation** of high spin **isomers** in the 191Pb **isotope**

AU Lagrange, J. M.; Pautrat, M.; Dionisio, J. S.; Vieu, Ch.; Vanhorenbeeck, J.

CS Institut de Physique Nucleaire, IN2P3-CNRS, Orsay, 91406, Fr.

SO Nuclear Physics A (1999), A648(1,2), 64-72
CODEN: NUPABL; ISSN: 0375-9474

PB Elsevier Science B.V.

DT Journal

LA English

AB The 191Pb **isotope**, produced through different A(b,xn)191Pb reactions, where b stands for nuclei such as 16O, 20Ne, and 31P, was studied. The **half-life** of some excited levels being greater than 10 ns, the recoil catcher method is suitable to look into the **deexcitation γ ray** and conversion electron spectra of these states. The conversion coeffs. were deduced and e--**γ** and **γ-γ** coincidence measurements lead to the part of the level scheme **deexciting** these **isomers**. This level scheme is compared to **theor** . predictions obtained through a microscopic calcn. in a three quasi-particle approximation, using a surface delta interaction with a reduced pairing component. The conclusions are very similar to those previously obtained for 193Pb.

IT **Nuclear energy level**
(**isomer; nuclear** level scheme for **gamma-ray** and conversion electron **deexcitation** of 191Pb high-spin **isomers** populated in 180W(16O,5n), 182W(16O,7n), 176Hf(20Ne,5n) and 165Ho(31P,5n) reactions)

IT Electron internal conversion
Gamma ray
Nuclear transition
(nuclear level scheme for **gamma-ray** and conversion electron **deexcitation** of 191Pb high-spin **isomers** populated in 180W(16O,5n), 182W(16O,7n), 176Hf(20Ne,5n) and 165Ho(31P,5n) reactions)

IT 7440-60-0, Holmium, reactions 7723-14-0D, Phosphorus, ions of phosphorus-31, reactions 7782-44-7D, Oxygen, ions of oxygen-16, reactions 13981-34-5, Neon-20, reactions 14265-79-3, Tungsten-180, reactions 14265-80-6, Tungsten-182, reactions 14452-48-3, Hafnium-176, reactions
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(nuclear level scheme for **gamma-ray** and conversion electron **deexcitation** of 191Pb high-spin **isomers** populated in 180W(16O,5n), 182W(16O,7n), 176Hf(20Ne,5n) and 165Ho(31P,5n) reactions)

IT 51634-69-6, Lead-191, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(nuclear level scheme for **gamma-ray** and conversion electron **deexcitation** of 191Pb high-spin **isomers** populated in 180W(16O,5n), 182W(16O,7n), 176Hf(20Ne,5n) and 165Ho(31P,5n) reactions)

L145 ANSWER 19 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1997:62611 HCAPLUS
DN 126:191613
OREF 126:36919a,36922a
TI Oblate deformed **isomers** in N = 83 isotones
AU Ideguchi, E.
CS RIKEN, Japan
SO JAERI-Conf (1996), 96-007(Genken Tandemu Busuta ni yoru Kaku Bunko Kokunai Kyodo Jikken Kenkyukai Hokokushu, 3rd, 1995), 44-48
CODEN: JECNEC
PB Japan Atomic Energy Research Institute
DT Journal
LA Japanese
AB 148Tb was produced by the 27Al(130Te,9n) reaction by irradiating a 1.35-mg/cm2 Al film with a 7.5-MeV/u 130Te beam to determine the decay mode of the high-spin **isomer** of 148Tb. The 148Tb emitted from the target was separated from the primary beam by a recoil nuclear separator and then captured by a plastic scintillator. The **γ- rays** emitted were measured using Ge detectors and NaI(Tl) scintillators to measure particle-**γ**-**γ** coincidences simultaneously. The excitation energy and the **half life** of the high-spin **isomer** were determined to be 8.620 MeV and 1.310 ± 0.007 μs, resp. A **change** in the shape of 148Tb from spherical to oblate was observed The configuration of the high-spin **isomer** was calculated to be [πh11/22d5/2- 1,νf7/2h9/2i13/2]27+. The mean moment of inertia of N = 83 isotones was investigated by plotting the excitation energy of 144Pm, 145Sm, 147Gd and 148Tb vs. the **function** of I(I + 1) and it was found to be 77-96 MeV-1.
IT **Nuclear energy level**
(**isomer**; oblate deformed **isomers** in N = 83 isotones)
IT Moment of inertia
(of N = 83 isotones)
IT 7429-90-5, Aluminum, reactions 14390-76-2, Tellurium 130, reactions
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(excitation energy and **half life** of terbium-148 high-spin oblate **isomer** populated in 27Al(130Te,9n) reaction)
IT 29670-02-8, Terbium 148, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(excitation energy and **half life** of terbium-148 high-spin oblate **isomer** populated in 27Al(130Te,9n) reaction)

L145 ANSWER 20 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1994:63692 HCAPLUS
DN 120:63692
OREF 120:11368h,11369a
TI Intermediate structure in the photoexcitation of selenium-77m, bromine-79m, and barium-137m
AU Carroll, J. J.; Collins, C. B.; Keyde, K.; Huber, M.; von Neumann-Cosel, P.; Ponomarev, V. Yu.; Richmond, D. G.; Richter, A.; Schlegel, C.; et al.
CS Cent. Quantum Electron., Univ. Texas, Dallas, Richardson, TX, 75083, USA
SO Physical Review C: Nuclear Physics (**1993**), 48(5), 2238-45
CODEN: PRVCAN; ISSN: 0556-2813
DT Journal
LA English
AB Continuing the systematic investigation into the photoexcitation of **isomers** over wide mass and energy ranges, the production of 77Se, 79Brm, and 137Bam was studied with the **bremsstrahlung** facility at the superconducting Darmstadt linear accelerator. These **isomers** have **half-lives** on the order of seconds. Excitation **functions** were measured for the (. **gamma**.,γ') reactions populating the **metastable** states for energies of 2-7 MeV and the important intermediate states were identified. Nuclear structure calcns. with the quasiparticle-phonon model for 79Br and the particle- (hole-) core coupling approach for 137Ba gave satisfactory descriptions for the strength and position of the dominant mediating levels. Admixts. of fragmented outershell single-particle strength shifted to low energies were identified as essential features of the wave **functions** of those states. Intermediate states in 77Se displayed very large strengths compared to other **isomers** in the same mass region, providing further support for the correlation between integrated cross sections and ground state deformations recently discovered in the A = 160-200 mass region. Such an enhancement would considerably improve the feasibility of a **gamma-ray** laser based on the sudden **deexcitation** of **isomeric** populations in deformed **nuclei**.
IT **Gamma ray**
(laser, feasibility of)
IT Lasers
(**gamma-ray**, feasibility of)
IT 13981-97-0, Barium-137, properties 14336-94-8, Bromine-79, properties
14681-72-2, Selenium-77, properties
RL: PRP (Properties)
(**nuclear isomeric** level, from **gamma** scattering)

L145 ANSWER 21 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1993:155751 HCAPLUS
DN 118:155751
OREF 118:26579a,26582a
TI **Isomeric** states in osmium-180
AU Venkova, Ts.; Morek, T.; Marti, G. V.; Schnare, H.; Kraemer-Flecken, A.; Gast, W.; Georgiev, A.; Hebbinghaus, G.; Lieder, R. M.; et al.
CS Inst. Kernphys., Forschungszent. KFA Juelich, Juelich, W-5170, Germany
SO Zeitschrift fuer Physik A: Hadrons and Nuclei (**1993**), 344(4), 417-23
CODEN: ZPAHEX; ISSN: 0939-7922
DT Journal
LA English
AB Two new **isomers** have been observed in 180Os. A high-K **isomer** with I, K ≥ 20 and a **half-life** of T1/2 = 12 ± 4 ns have been **established.** It **deexcites** via two transitions into the 18+ level of the yrare band indicating an unusually small K-hindrance factor. Evidence for an **isomer** with I, K > 16 and a **half-life** of T1/2 = 41 ± 10 ns was found. A **half-life** of 17 ± 3 ns was measured for the **previously known** 7- state at 1862 keV. The decay scheme of the previously known 7- **isomer** at 1928 keV has been extended and a revised version is presented.
IT **Gamma ray**
(of osmium-180, from heavy-ion reaction)
IT 14683-22-8, Neodymium-150, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**bombardment** of, by sulfur-36, **isomeric** levels of osmium-180 from)
IT 14993-35-2, Osmium-180, properties
RL: PRP (Properties)
(**nuclear energy levels** of, **isomeric**, from heavy-ion reaction)

L145 ANSWER 22 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1990:168557 HCAPLUS
DN 112:168557
OREF 112:28282h,28283a
TI Study of nuclear fluorescence excited by laser plasma x-rays: final report, 10 September 1984-31 July 1988
AU Collins, C. B.
CS Cent. Quantum Electron., Univ. Texas, Richardson, TX, USA
SO Report (1988), DOE/DP/40208-T1; Order No. DE89006453, 24 pp. Avail.: NTIS From: Energy Res. Abstr. **1989**, 14(8), Abstr. No. 15656
DT Report
LA English
AB An attempt was made to demonstrate the feasibility of accelerating the radioactive decay of populations of long-lived **isomeric** states of **nuclear** excitation. Such an achievement would represent a substantial step along the path of research which might ultimately lead to a **γ-ray** laser. Quant. modeling has indicated that such a result might be obtained through a type of optical pumping with laser plasma x-rays produced by conventional devices of realistic size. The results represent the first step of a type of scaling study that would indicate how close to threshold the medium for a **.gamma .-ray** laser could be pumped with existing fusion lasers. Calcns. had indicated that if a suitable "ideal" medium can be found, the threshold for a **γ-ray** laser would be attained before breakeven in fusion. This 1st phase of research was focused upon the demonstration of the overall efficiency for the **coupling** of x-radiation into **γ-ray** fluorescence through the **absorption** by a nuclear ground state population of x-radation from a laser plasma.
IT X-ray, chemical and physical effects
(**gamma-ray** lasers excited by, from laser plasma)
IT **Gamma ray**, chemical and physical effects
(lasers using, nuclear fluorescence excited by laser plasma x-rays in relation to)
IT **Gamma ray**
(coherent, nuclear fluorescence excited by laser plasma x-rays in relation to)

L145 ANSWER 23 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1988:557691 HCAPLUS
DN 109:157691
OREF 109:26085a,26088a
TI Spectroscopic study of short lived, high spin **isomers** through the recoil method
AU Lagrange, J. M.; Pautrat, M.; Dionisio, J. S.; Vieu, Ch.; Vanhorenbeeck, J.
CS Inst. Phys. Nucl., Orsay, 91406, Fr.
SO Nuclear Instruments & Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors, and Associated Equipment (**1988**), A271(3), 527-42
CODEN: NIMAER; ISSN: 0168-9002
DT Journal
LA English
AB The γ and conversion e **deexcitation** spectra of nuclei, produced through (HI,xn) reactions, are spoiled by various phenomena, most of them related to the reaction itself. When, in the **isotopes** studied, one or several **isomers** are present, the **half-life** of the higher energy one being .apprx.15 ns or more, then the compound nucleus recoil method can provide much cleaner spectra. This method is extensively described and discussed, together with others, more briefly treated, also meant to reduce the unwanted effects; these techniques may be used either sep. or combined, depending on the expts. performed. Examples of the results obtained illustrate the substantial improvements reached.
IT **Nuclear energy level**
(**isomeric**, in heavy-ion reactions)
IT Nuclear spectrometry
(of short-lived high-spin **isomers**)
IT Heavy-ion beams
(reactions of, spectroscopy of **isomeric** levels excited in)
IT Electron internal conversion
Gamma ray
(spectroscopy, of short-lived high-spin **isomers**)

L145 ANSWER 24 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1986:579479 HCAPLUS
DN 105:179479
OREF 105:28817a,28820a
TI Identification of a 3.2 μs **isomer** in rubidium-76
AU Hofmann, S.; Zychor, I.; Hessberger, F. P.; Muenzenberg, G.
CS GSI, Darmstadt, D-6100/11, Fed. Rep. Ger.
SO Zeitschrift fuer Physik A: Atomic Nuclei (1986), 325(1), 37-43
CODEN: ZAANEE; ISSN: 0930-1151
DT Journal
LA English
AB Fusion evaporation reactions were investigated to search for short lived **isomeric** states of **nuclei** near the p drip line. The . **gamma.-ray** spectra were measured, both singles and in delayed coincidence with evaporation residues implanted into a Si detector after a velocity separation A short lived activity was measured in the 40Ca + 40Ca → 80Zr* reaction at excitation energies between 55 and 79 MeV. A **half-life** of 3.20(10) μs was determined from delayed coincidences between evaporation residues and **γ rays**. At E* = 55 MeV the cross section in 9 mb. The activity was assigned to an **isomeric** state in 76Rb [25292-38-0] by investigation of excitation **functions**. The **isomer** decays by emission f 4 **γ-rays** with energies of 70.55(5), 101.30(4), 145.11(5), and 246.32(10) keV. A level scheme is proposed assigning to the **isomeric** state an energy of 316.94(7) keV above the ground state. The **isomer** decaying into the low spin 1(-) ground state band is explained from systematics as a band head of a high spin (4+)(πg9/2,νg9/2) structure. A high hindrance factor of 3 + 106 for e1 radiation compared to a single particle transition is due possibly to a **change** of the core particle structure in the transition.
IT **Gamma ray**
(from rubidium-76, fusion-evaporation reaction in calcium-40-ion bombardment of calcium-40 in relation to)
IT Nuclear fusion
(of calcium-40, with calcium-40, rubidium-76 identification in relation to)
IT 14092-94-5, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(bombardment of, by calcium-40, rubidium-76 identification in relation to)
IT 25292-38-0P, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, fusion-evaporation reaction of calcium-40-ion bombardment of calcium-40 in relation to)
IT 14595-41-6P, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in calcium-40-ion bombardment of calcium-40, rubidium-76 identification in relation to)

L145 ANSWER 25 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1982:445474 HCAPLUS
DN 97:45474
OREF 97:7599a,7602a
TI A 150 ms 10+ **isomer** in dysprosium-146
AU Gui, S. Z.; Colombo, G.; Nolte, E.
CS Fachber. Phys., Tech. Univ. Muenchen, Garching, D-8046, Fed. Rep. Ger.
SO Zeitschrift fuer Physik A: Atoms and Nuclei (**1975**) (1982), 305(4), 297-306
CODEN: ZPAADB; ISSN: 0340-2193
DT Journal
LA English
AB After in- and off-beam γ and conversion e measurements, as γ excitation functions, γγ and eγ coincidences, pulsed beam techniques and multi spectrum analyses of the residual activities, an **isomer** was tentatively assigned to be a 10+ state in 146Dy [79321-82-7], which decays into 2 7- states by E3 transitions. The **half- life** of the **isomer** is 150 ± 20 ms. The **isomer** follows the β decay of the previously unknown 3.9-s **isotope** 146Ho. The **mechanism** of the appearance of such an **isomer** is discussed.
IT Electron internal conversion
(in dysprosium-146 **isomer**)
IT **Gamma ray**
(of dysprosium-146 **isomer**)
IT 79321-82-7, properties
RL: PRP (Properties)
(**nuclear energy levels** of, **isomeric**)

L145 ANSWER 26 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 1980:136561 HCAPLUS

DN 92:136561

OREF 92:22125a,22128a

TI **Gamma**-spectroscopy within the island of high-spin **isomers** near N = 82

AU Borggreen, J.; Bjoernholm, S.; Christensen, O.; Del Zoppo, A.; Herskind, B.; Pedersen, J.; Sletten, G.; Folkmann, F.; Simon, R. S.

CS Niels Bohr Inst., Roskilde, Den.

SO Zeitschrift fuer Physik A: Atoms and Nuclei (1975) (**1980**), 294(2), 113-24
CODEN: ZPAADB; ISSN: 0340-2193

DT Journal

LA English

AB A NaI sum-spectrometer combined with Ge-counters was used to characterize the members of the island of high-spin **isomers** near N = 82. On the basis of **half lives**, total γ- decay energies, and discrete γ-lines, assignments of 22 **isomers** are given or confirmed. The **isomers** are localized to the region 82 ≤ N ≤ 86 and Z ≤ 68, and the excitation energies **vary** from 3 to 12.2 MeV. An empirical relation between spin and excitation energy is presented and on this basis **isomeric** spin values up to (33 ± 2).plcnst. were deduced. The **isomers** are thought to be due to strong alignment of 2 to 8 shell-model particles in a spherical or possibly weakly oblate potential.

IT **Gamma ray**
(from rare earth high-spin **isomers**)

IT 14952-31-9, properties 15055-18-2, properties 15904-62-8, properties
18235-35-3, properties 18235-36-4, properties 18235-40-0, properties
18254-40-5, properties 18254-41-6, properties 25027-01-4, properties
25731-95-7, properties 28790-59-2, properties 29670-02-8, properties
32587-33-0, properties 51691-45-3, properties
RL: PRP (Properties)
(**nuclear energy level** of, **gamma -ray** spectroscopy of high-spin **isomeric**)

L145 ANSWER 27 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1979:446855 HCAPLUS
DN 91:46855
OREF 91:7495a,7498a
TI On excitation of **isomeric nuclear** states in a crystal by synchroton radiation
AU Kagan, Yu.; Afanas'ev, A. M.; Kohn, V. G.
CS I. V. Kurchatov Inst. At. Energy, Moscow, USSR
SO Journal of Physics C: Solid State Physics (**1979**), 12(3), 615-31
CODEN: JPSOAW; ISSN: 0022-3719
DT Journal
LA English
AB The radiative decay of an **isomeric nuclear** level with a Moessbauer transition in a crystal, after resonance Bragg scattering of a synchrotron radiation pulse, was studied. A time (t) dependence of the form (τ0/t)2 exp (-t/τ0) was found for small deviations, α, from the Bragg angle. This acceleration of the decay was attributed to the formation of nuclear excitons. For large α, the decay remains exponential whereas the intensity **decreases** as 1/α2. The frequency distribution of the reflected pulse and the formation of a resonance structure were analyzed. The time evolution of the synchrotron radiation pulse transmitted through a Bragg reflector and resonance **absorber** was derived. An inconsistency between the intensity of the delayed radiation and the frequency distribution indicates that in Moessbauer expts. the intensity must be measured integrated over time except for an **initial** time interval after the pulse and that deviations from the Bragg angle are important.
IT Synchrotron **radiation**
(Bragg reflection and Moessbauer **absorption** of, nuclear exciton in relation to)
IT **Nuclear energy level**
(excitation of, by Bragg-scattered synchrotron radiation in crystals, theory of)
IT Moessbauer effect
(of **isomeric nucleus** in crystals, by Bragg-scattered synchrotron radiation, theory of)

L145 ANSWER 28 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1979:44958 HCAPLUS
DN 90:44958
OREF 90:7121a,7124a
TI New **isomeric** state in bromine-76 with **half-life** 1.49 sec
AU Schmidt-Ott, W. D.; Hautojarvi, A. J.; Schrewe, U. J.
CS II. Phys. Inst., Univ. Goettingen, Goettingen, Fed. Rep. Ger.
SO Zeitschrift fuer Physik A: Atoms and Nuclei (**1975**) (1978), 289(1), 121-2
CODEN: ZPAADB; ISSN: 0340-2193
DT Journal
LA English
AB In the course of systematic investigation of low-lying nuclear states in the region around N = 40 in the simple shell model a new **isomeric** state in 76Br [15765-38-5] at 102.59 ± 0.03 keV was found having a **half-life** of 1.49 ± 0.02 s and spin 4+.
IT **Gamma ray**
(from bromine-76 **isomer deexcitation**)
IT 15765-38-5, properties
RL: PRP (Properties)
(**nuclear energy levels** of, **isomeric**)

L145 ANSWER 29 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1978:414403 HCAPLUS
DN 89:14403
OREF 89:2193a,2196a
TI Kinetics of stimulated Moessbauer emission in neutron-pumped krypton-83
AU Baldwin, G. C.; McNeil, L. E.
CS Los Alamos Sci. Lab., Los Alamos, NM, USA
SO Report (**1977**), LA-7004-MS, 41 pp. Avail.: NTIS
From: Energy Res. Abstr. 1978, 3(7), Abstr. No. 15667
DT Report
LA English
AB Using an idealized kinetic model for a **gamma-ray** laser system pumped by a spatially uniform delta-**function** burst of fast neutrons, a computer study was made of the growth, decay, and attenuation of resonant 9.3-keV recoil-less **gamma** radiation from 83Kr, as a **function** of neutron-burst intensity, **gamma- ray** line-breadth, temperature dilution of Kr in a Be host, and nonresonant **absorption** coefficient of the host. The isomer is formed by neutron capture in a 40-eV resonance, and the 144-ns transition lifetime is short in comparison with the time for neutrons to moderate. The kinetic behavior of this system is therefore determined largely by the time dependence of the neutron spectrum and only slightly by the reciprocal linebreadth of the graser transition. Because the lower state is stable, inversion is rapidly lost, so that, for observable gain, an unrealistically high source intensity is needed. Use of a Be host, which **increases** the Debye temperature, is negated by its parasitic **absorption**. Although this transition is unsuitable for a graser, these findings help to illustrate useful properties of **nuclear isomers** and solid hosts for which stimulated emission might be observable.
IT Quantum amplification
(**γ-ray**)
IT Lasers
(Moessbauer emission, in neutron-pumped krypton-83)
IT Moessbauer effect
(neutron-pumped stimulated, of krypton-83, kinetics of)
IT 12586-31-1
RL: PRP (Properties)
(krypton-83 stimulated Moessbauer emission pumped by)
IT 13965-98-5, properties
RL: PRP (Properties)
(stimulated Moessbauer emission in neutron-pumped)

L145 ANSWER 30 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1978:127473 HCAPLUS
DN 88:127473
OREF 88:19938h,19939a
TI An investigation of short-lived **isomers** in the **nuclei** niobium-90, -92, molybdenum-99, technetium-98, -100, -101 and ruthenium-101
AU Bartsch, H.; Huber, K.; Kneissl, U.; Krieger, H.
CS Inst. Kernphys., Univ. Giessen, Giessen, Fed. Rep. Ger.
SO Zeitschrift fuer Physik A: Atoms and Nuclei (**1975**) (1978), 285(3), 273-81
CODEN: ZPAADB; ISSN: 0340-2193
DT Journal
LA English
AB Short-lived **isomers** in the **nuclei** 90,92Nb, 99Mo, 98,100,101Tc, and 101Ru populated in photonuclear reactions were studied by pulsed beam techniques. Energy and **half-life** of the **γ-rays deexciting** the **isomeric** levels were measured by recording energy-time spectra. The delayed **γ-rays** and K x-rays were detected by means of an intrinsic Ge-detector of high resolution From the measured intensity ratios internal conversion coeffs. were determined The multipolarities of the **isomeric** transitions could be deduced in most cases. A classification of the observed **isomers** was tried on the basis of the obtained exptl. results and most recent literature data.
IT Electron internal conversion
Gamma ray
(of molybdenum-99 and niobium **isotopes**, excited by photonuclear reactions)
IT 13982-37-1, properties 14119-15-4, properties 14681-65-3, properties 14913-92-9, properties 14914-61-5, properties 15128-39-9, properties 32025-58-4, properties
RL: PRP (Properties)
(**nuclear energy levels** of, excited by photonuclear reactions, short-lived **isomeric**)

L145 ANSWER 31 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1977:590363 HCAPLUS
DN 87:190363
OREF 87:29998h,29999a
TI Spectra of **γ-rays** of some millisecond **isomers** obtained in reactions with α-particles
AU Goncharov, K. S.; Kuz'menko, V. A.; Remaev, V. V.
CS Fiz.-Tekh. Inst., Kharkov, USSR
SO Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya (**1977**), 41(8), 1673-5
CODEN: IANFAY; ISSN: 0367-6765
DT Journal
LA Russian
AB A search for ms **isomers** with the help of a scintillation spectrometer (Goncharov, K.S., et al., 1971) is continued with the more advanced techniques of Ge(Li) spectrometer. The maximum energy of bombarding α-particles is 38 MeV. **Half-lives, . gamma.-ray** energies, branching ratios, and absolute cross sections for the production are given in a table for the following **isomers**: 71Gem (21.5), 75Asm (17.1), 88Ym (14.3), 90Nbm (6.5), 109Inm (210), 117Tem (100), 132Xem (8.9), 136Lam (114), 138Cem (8.65), 142Pmm (2.36), 155Gdm (32), 180Wm (5.6), 183Rem (1.02), 194Aum (400), 197Tlm (530), 199Tlm (27.8), 205Pbm (4.7), and 205Pom (60). The values in parentheses are the respective **half-lives** in ms.
IT **Gamma ray**
(from **isomeric** level **deexcitation**)
IT 7440-38-2, properties
RL: PRP (Properties)
(**nuclear energy levels** of arsenic-75, lifetime of **isomeric**)
IT 13982-36-0, properties 14107-52-9, properties 14119-28-9, properties
14155-79-4, properties 14265-79-3, properties 14333-34-7, properties
14374-81-3, properties 14391-71-0, properties 14484-13-0, properties
14681-65-3, properties 14833-35-3, properties 14981-85-2, properties
15064-66-1, properties 15756-89-5, properties 15758-20-0, properties
15758-26-6, properties 16729-76-3, properties
RL: PRP (Properties)
(**nuclear energy levels** of, lifetime of **isomeric**)

L145 ANSWER 32 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1977:162210 HCAPLUS
DN 86:162210
OREF 86:25405a,25408a
TI Measurements of g-factors of **isomeric** states in fission fragments
AU Cheifetz, E.; Wolf, A.
CS Dep. Nucl. Phys., Weizmann Inst. Sci., Rehovoth, Israel
SO Report (**1976**), WIS-Ph-76/15, 19 pp. Avail.: INIS
From: INIS Atomindex 1977, 8(4), Abstr. No. 289008
DT Report
LA English
AB Spontaneous fission of 252Cf [13981-17-4] produces very n-rich **isotopes** falling mainly in 3 interesting regions of the periodic table: (1) the A = 100-120, Z = 38-46 region for which there is evidence of large deformations; (2) the **isotopes** around the double magic 132Sn where simple configurations coupled to the closed shells Z = 50, N = 82 prevail; (3) the region with A = 140-150, Z = 54-60, where there is a **smooth** transition from spherical to deformed nuclei. Many **isomeric γ-rays** with **half- lives** between 10-3000 ns were found to be emitted by fragments in regions (1) and (2). The γ-factors of **isomeric** states in fission fragments were measured. Two expts. were carried out. In the 1st, angular distributions (with respect to the fission axis) of known **isomeric γ-rays** emitted by stopped fragment were found to be ansotropic, thus showing alignment of the angular momentum. In the 2nd experiment, this alignment was used in a time-different perturbed angular correlation measurement from which g-factors were directly obtained.
IT Fission fragments and products
RL: PRP (Properties)
(**nuclear** g-factors of **isomeric** states of, from californium-252 spontaneously, determination of)
IT Nuclear g-factor
(of fission fragment **isomeric** state, from californium-252 spontaneously)
IT 13981-17-4, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(fission of, nuclear g-factor determination of **isomeric** states in fragments from spontaneous)

L145 ANSWER 33 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1976:599364 HCAPLUS
DN 85:199364
OREF 85:31743a,31746a
TI The structure of the excited states in rubidium-84
AU Slamkova, K.; Galan, P.; Kristiak, J.
CS Inst. Phys., Slovak Acad. Sci., Bratislava, Czech.
SO Czechoslovak Journal of Physics (**1976**), B26(10), 1122-6
CODEN: CZYPAO; ISSN: 0011-4626
DT Journal
LA English
AB The intensities of the γ-transitions **deexciting** the **isomer** 84Rbm [15765-86-3], the **half-life** of the **isomeric** state T1/2 = (20.6 ± 0.8) min and the total internal conversion coefficient of the 216.3-keV γ-transition were determined The multipolarity of this transition was established as M3 + (79.1 ± 2.7)% E4. The excited states in 84Rb are interpreted on the basis of their spin values and of the partial **half-lives** of γ-transitions as p-n 2-particle configurations of p and n single-particle states 1f5/2, 1g9/2, and 1g9/2, 2p1/2, 1f5/2, resp.
IT **Gamma ray**
Nuclear energy level
(of rubidium-84, **isomeric** transitions)
IT 15765-86-3, properties
RL: PRP (Properties)
(**nuclear energy levels** of,
isomeric transitions)

L145 ANSWER 34 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1976:583364 HCAPLUS
DN 85:183364
OREF 85:29245a,29248a
TI Measurement of millisecond **half-lives** of **isomeric** levels in some **nuclei**
AU Garg, K. C.; Khurana, C. S.
CS Dep. Phys., Punjabi Univ., Patiala, India
SO Indian Journal of Pure and Applied Physics (**1976**), 14(9), 738-40
CODEN: IJOPAU; ISSN: 0019-5596
DT Journal
LA English
AB **Half-lives** of 2·7, 14·5, 17, 20, 20·4, 44, and 2230 msec, of **isomeric** levels in 208Bi, 88Y, 75As, 24Na, 71Ge, 114In, and 167Er, resp. were measured, employing on-line irrradn. system. These msec **isomeric** levels are produced by 14·7 MeV n through (n,p), (n,α), (n,n'), and (n,2n) reactions on natural target samples. A **γ- ray** scintillation detector **coupled** with NTA-512B, 1024 channel analyzer was used to follow the decay of the msec activities. Deflected d beam bursts were used to reduce the long-time background to **initial** count ratios in the decay curves to achieve a better accuracy of measurements.
IT **Nuclear energy level**
(**isomeric**, lifetime determination of)
IT **Gamma ray**
(of arsenic-75 and bismuth-208, **isomeric** level lifetime determination with)
IT 12586-31-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(alpha particles and nucleons from bombardment by, of atomic nuclei)
IT 12587-46-1P
RL: PREP (Preparation)
(from neutron bombardment, of aluminum-27)
IT 12586-59-3P
RL: PREP (Preparation)
(from neutron bombardment, of magnesium-24)
IT 7429-90-5, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(neutron bombardment of aluminum-27, α-particles from)
IT 7440-69-9, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(neutron bombardment of bismuth-209, neutrons from)
IT 7440-65-5, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(neutron bombardment of yttrium-89, neutrons from)
IT 13982-21-3, reactions 14191-71-0, reactions 14833-43-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(neutron bombardment of, neutrons from)
IT 14280-39-8, reactions
(neutron bombardment of, protons from)
IT 7440-38-2, properties
(**nuclear energy levels** of arsenic-75, lifetime of **isomeric**)
IT 13981-55-0, properties 13982-04-2, properties 13982-36-0, properties
14145-42-7, properties 14374-81-3, properties 14380-60-0, properties
(**nuclear energy levels** of, lifetime of **isomeric**)

L145 ANSWER 35 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1975:569552 HCAPLUS
DN 83:169552
OREF 83:26547a,26550a
TI Fission fragment **isomers** from spontaneous fission of californium-252
AU Clark, R. G.; Glendenin, L. E.; Talbert, W. L., Jr.
CS Dep. Chem., Univ. Maryland, College Park, MD, USA
SO Phys. Chem. Fission, Proc. IAEA Symp., 3rd (**1974**), Meeting Date 1973, Volume 2, 221-48 Publisher: UNIPUB, New York, N. Y.
CODEN: 31FGAP
DT Conference
LA English
AB **Isomeric** levels, populated before beta decay during the **deexcitation** of 252Cf [13981-17-4] fission fragments, were studied by observing the K **x-rays** and **γ-rays** from the **isomeric** decay. A 6-parameter experiment with high-resolution Si(Li) and Ge(Li) detectors measured photon energies from 10-1500 keV and emission times from 1-3000 nsec after the detection of complementary fission fragment pairs by Si-Au surface barrier detectors. The photon intensity was studied as a **function** of fragment mass (computed from the complementary fragment kinetic energies), photon energy and emission time. **Half-life** and fragment mass assignments were made for all **isomeric γ- rays**. A 4-parameter experiment, by using 2 Ge(Li) detectors, observed coincidences between **isomeric γ-rays**, and the coincidence information was combined with the assignments and observed K **x-ray** intensities of the 6-parameter experiment and with other work to assign 130 of the transitions to specific nuclei. Previously reported concns. of the **isomeric γ- ray** intensity around masses 98, 108, and 134 are discussed, along with feeding from **isomeric** levels into ground state rotational bands in the deformed rare-earth region.
IT **X-ray**
(K-fluorescence, from fission fragments from spontaneous fission of californium-252)
IT **Gamma ray**
(from fission fragments, from spontaneous fission of californium-252)
IT Fission fragments and products
Rare earth metals, properties
RL: RCT (Reactant); RACT (Reactant or reagent)
(**gamma rays** from, from spontaneous fission of californium-252)
IT **Nuclear energy level**
(**isomers**, of fission fragments from spontaneous fission of californium-252)
IT Fission
(of californium-252, spontaneous, **gamma-ray** emission in)
IT 13981-17-4, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(fission of, **gamma rays** from fragments from spontaneous)

L145 ANSWER 36 OF 50 HCAPLUS COPYRIGHT ACS on STN

AN 1975:449537 HCAPLUS

DN 83:49537

OREF 83:7747a,7750a

TI Neutron-deficient gadolinium **isotopes**. Gadolinium-145m1 and gadolinium-145m2

AU Firestone, R. B.; Warner, R. A.; McHarris, Wm. C.; Kelly, W. H.

CS Dep. Chem., Michigan State Univ., East Lansing, MI, USA

SO Physical Review C: Nuclear Physics (**1975**), 11(5), 1864-6
CODEN: PRVCAN; ISSN: 0556-2813

DT Journal

LA English

AB An **isomer** in 145Gd [23315-89-1] at 27.3 keV is reported with a **half-life** of 11.5 ± 0.3 nsec and an internal conversion coefficient αL = 16.9 ± 1.4. This state is described as substantially the νd3/2 single-neutron state which is fed by the 145Cdm2 νh11/2 **isomer** and which **deexcites** through the νs1/2 ground state. The **isomeric** transition from 145Gdm1 is 99.2 ± 0.2% M 1 + 0.8 ± 0.2% E2, indicating a hindrance factor of 100 in the M 1 and an enhancement factor of 40 in the E2 over the single-particle ests. Recent information on the N = 81 11-/2 **isomers** is presented for 133Te through 147Dy showing the systematic **changes** in exptl. energies and M 4 matrix elements.

IT **Gamma ray**
(of gadolinium-145, from decay of **isomeric**)

IT **Nuclear energy level**
(of gadolinium-145, **isomeric**)

IT 14981-86-3, properties
RL: RCT (Reactant); RACT (Reactant or reagent)
(**gamma rays** from, from **metastable** gadolinium-145 decay)

IT 23315-89-1, properties
RL: PRP (Properties)
(**nuclear energy levels** of, **isomeric**)

L145 ANSWER 37 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1973:78262 HCAPLUS
DN 78:78262
OREF 78:12413a,12416a
TI Penetrability of nuclear fission barrier for muonic atoms
AU Blocki, J.; Sujkowski, Z.; Zielinska-Pfabe, M.
CS Inst. Nucl. Res., Swierk, Pol.
SO Physics Letters B (**1972**), 42(4), 415-18
CODEN: PYLBAJ; ISSN: 0370-2693
DT Journal
LA English
AB The nuclear fission penetrabilities of muonic atoms, 234,236,238U and 240Pu, were calculated as functions of excitation energy by using the simple WKB formula (Nielson, S. G., 1969). Comparison of the results with the fission penetrabilities of the normal atoms showed: (1) that the nucleus, excited in a radiationless transition of the muon, fissioned immediately with the excitation energy being equal to the energy of muonic atom transition; and (2) that there was a finite **probability** of **nuclear deexcitation** to an **isomeric** state in the 2nd well at the 2-humped barrier.
IT Fission
(barrier penetrability, of muonic atoms, calcn. of)
IT Energy level
(of μ-mesonic atoms, of plutonium 240 and uranium **isotopes**, fission barrier penetrability and transitions between)
IT 37348-09-7 37348-10-0 37348-11-1 37348-12-2
RL: PRP (Properties)
(fission barrier of, penetrability of, excitation energy in calcn. of)

L145 ANSWER 38 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1972:79544 HCAPLUS
DN 76:79544
OREF 76:12771a,12774a
TI Short-lived activities in fluorine-18, sodium-22, potassium-40, rubidium-85, and molybdenum-92 excited by 14.7 MeV fast neutrons
AU Adam, A.; Horvath, D.; Kiss, A.; Mayr, E.
CS Cent. Res. Inst. Phys., Budapest, Hung.
SO Nuclear Physics A (**1972**), 180(2), 587-92
CODEN: NUPABL; ISSN: 0375-9474
DT Journal
LA English
AB The production of short-lived **isomeric** states in 18F, 22Na, 40K, 85Rb, and 92Mo was investigated by 14.7-MeV fast n. A combined α-particle and pulsed-beam method was used to measure the time distribution of **γ-rays** produced in the **deexcitation** process. The spin cut-off factors were obtained from the exptl. cross sections and other known values by means of the Huizenga-Vandenbosch method. **Half-lives** of the **isomeric** levels of the **nuclei** were also deduced.
IT **Gamma ray**
(from fluorine-18 and molybdenum-92, from decay of **isomeric**)
IT **Nuclear energy level**
(**isomers**, excited by neutron bombardment)
IT 12586-31-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(bombardment by, **isomer** excitation in)
IT 13966-00-2, properties 13966-32-0, properties 13981-56-1, properties
13982-12-2, properties 14191-67-4, properties
RL: PRP (Properties)
(**nuclear energy levels** of, **isomeric**)

L145 ANSWER 39 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1971:514953 HCAPLUS
DN 75:114953
OREF 75:18143a,18146a
TI Decay of neodymium-152 and the **isomers** of promethium-152
AU Daniels, William R.; Hoffman, Darleane C.
CS Los Alamos Sci. Lab., Univ. California, Los Alamos, NM, USA
SO Physical Review C: Nuclear Physics (**1971**), [3]4(3), 919-30
CODEN: PRVCAN; ISSN: 0556-2813
DT Journal
LA English
AB The radiations associated with the decay of 11.4-min 152Nd and its 4.1-min 152Pm daugter have been studied with Ge(Li), NaI(Tal), and anthracene detectors in both singles and coincidence configurations. A tentative decay scheme for 152Nd involving allowed β decay to the 4.1-min **isomer** of 152Pm (1+) (logft = 4.8) and to an excited 1+ level 294.6-keV higher (logft = 4.2) is presented. A new level in 152Sm has been placed at ≈1081 keV. The total β-decay energy is nearly the same as the measured β end-point energy, 3.6 ± 0.2 MeV. Evidence is presented for the existence of 2 **previously** unreported high-spin **isomers** of 152Pm having **half-lives** of 7.5 ± 1.0 min and ≈ 18 min. A decay scheme is proposed for the 7.5-min **isomer** (4±) of 152Pm including 16 known 152Sm levels and new levels at 1081, 1804, and possibly 1941 keV. At least 40% of the β transitions decay to the 1804-keV level with a logft of ≈5.7 which suggests hindered allowed or 1st-forbidden decay. The observation of a 1.8-MeV β group in coincidence with an intense 1437-keV γ transition which **deexcites** the 1804-keV level establishes the total β-decay energy for 7.5-min 152Pm as 3.6 ± 0.1 MeV. The ≈18-min **isomer** (≥6±) of 152Pm appears to populate a new level at 2172 by keV and possibly the 1941-keV level in 152Sm.
IT Nuclear reaction energy
(for beta-ray decay, of promethium-152)
IT **Gamma rays**
(from samarium-152, from decay of promethium-152, coincidences with beta rays)
IT **Nuclear energy levels**
(of samarium-152, from decay of promethium-152)
IT 19305-25-0, reactions
RL: PRP (Properties)
(decay of **isomers** of, **gamma-ray** spectrum in)
IT 19305-26-1, reactions
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(decay of, **gamma-ray** spectrum in)
IT 12587-47-2, Beta rays
(from neodymium-152 and promethium-152 **isomers**, **nuclear** reaction energy for)
IT 14280-32-1, properties
RL: PRP (Properties)
(**nuclear energy levels** of, from promethium-152 decay)

L145 ANSWER 40 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1971:443515 HCAPLUS
DN 75:43515
OREF 75:6843a,6846a
TI Fission **isomers** and intermediate states in near-barrier fission
AU Bjoernholm, Sven
CS Lawrence Radiat. Lab., Univ. California, Berkeley, CA, USA
SO Proceedings of the Robert A. Welch Foundation Conference on Chemical Research **(1970)**, Volume Date 1969, 13, 447-81
CODEN: PRAWAC; ISSN: 0557-1588
DT Journal
LA English
AB An anal. is made of recent advances in knowledge and understanding of the interplay of a **smoothly varying**, average term describing bulk properties of nuclear matter, and a correction term reflecting individual properties of specific nuclei associated with shell effects, on which is based the prediction of an island of stability of superheavy elements. Information on the height and thickness of the 1st and outer barriers of a 2-humped fission barrier of heavy nuclei at large deformations is derived from spontaneous fission **half- lives** and **γ-ray** decay of shape **isomers** as encountered in fission **isomerism** and resonance fission of the **isotopes** of Th, Np, U, Pu, Am, and Cm. Pertinent exptl. data on fission barriers and liquid-drop quantities, including liquid-drop barrier, liquid-drop energy for ground state shapes, and fissility parameter are illustrated graphically.
IT Fission
(intermediate states and **isomers** in)
IT **Nuclear energy levels**
(**isomers**, fission in)
IT Nuclear models
(liquid-drop, intermediate states and fission **isomers** in relation to)

L145 ANSWER 41 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1970:420654 HCAPLUS
DN 73:20654
OREF 73:3431a,3434a
TI Evidence for a direct reaction **mechanism** in the production of fission **isomers**
AU Repnow, R.; Metag, V.; Fox, J. D.; Von Brentano, P.
CS Max-Planck-Inst. Kernphys., Heidelberg, Fed. Rep. Ger.
SO Nuclear Physics A (**1970**), 147(1), 183-92
CODEN: NUPABL; ISSN: 0375-9474
DT Journal
LA English
AB Targets of 233,235,236,238U were bombarded with d and p in the energy range 11-20 MeV. Excitation functions for the production of fission **isomers** were obtained and are interpreted in terms of direct reaction processes. The most probable reactions are (d,px.**gamma** .) and (d,pnx**γ**) leading to **isomers** assigned to 236U and 238U with **half-lives** of 70 nsec and 110 nsec, resp.
IT **Nuclear energy levels**
(**isomers**, fission, of uranium **isotopes**, production in direct reaction in deuteron and proton bombardment)
IT Fission
(**isomers**, of uranium **isotopes**, production by direct reaction in deuteron and proton bombardment)
IT 12586-59-3, Protons 12597-73-8, Deuterons
(bombardment by, of uranium **isotopes**, fission **isomer** production by direct reaction in)
IT 7440-61-1P, reactions
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(deuteron and proton bombardment of uranium-238, fission **isomer** production by direct reaction in)
IT 13968-55-3P, reactions 13982-70-2P, reactions 15117-96-1P, reactions
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(deuteron and proton bombardment of, fission **isomer** production by direct reaction in)

L145 ANSWER 42 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1969:62994 HCAPLUS
DN 70:62994
OREF 70:11815a,11818a
TI Experimental studies of barium-136m, xenon-134, xenon-127m, and xenon-125m
AU Winn, Willard G.
CS Cornell Univ., Ithaca, NY, USA
SO U. S. At. Energy Comm. (**1968**), NYO-3664-6, 166 pp. Avail.: Dep.; CFSTI
From: Nucl. Sci. Abstr. 1968, 22(21), 46768
CODEN: XAERAK
DT Report
LA English
AB The **isomers** 136Bam, 134Xem, 127Xem, and 125Xem were produced by pulsed n irradiation of enriched and natural samples and transported by fast pneumatic transfer to a counting station where γ- and conversion e-spectra were observed by using NaI(Tl), Ge(Li), and Si(Li) detectors. Because of the short **half-lives** of the **isomers** investigated, special techniques were devised to provide fast positioning of the sample for detection. 136Bam(t1/2 = 307 ± 4 msec.) and 134Xem(t1/2 = 290 ± 17 msec.) were studied with reference to analogous **isomers** in the N = 80 isotones. Each **isomer** decays by a 3γ-cascade consistent with a 7 - E3→ 4+ E2→ 2+ E2→ 0+ scheme. Corresponding **.gamma** .-energies are 168 ± 7, 1048.6 ± 0.7, and 819.3 ± 0.7 kev. in 136Bam; and 232.9 ± 1.5, 879.9 ± 1.4, and 845.9 ± 1.0 kev. in 134Xem. As 134Xem had not been observed previously, internal conversion studies were performed to establish the multipolarity of the **isomeric** transition. An E3 assignment for the 233-kev. transition results from its measured K/LMNO ratio of 1.83 ± 0.32 **coupled** with the measured γ-intensities of 62.8 ± 8.0, 94.4 ± 6.3, and 100 for the 233-, 880-, and 846-kev. transitions, resp. The conversion e-statistics for the 880- and 846-kev. transitions did not allow definite assignments for these transitions; however, the . **gamma**.-intensities are consistent with the E2 assignments suggested in Nuclear Data Sheets. A comparison of 136Bam and 134Xem disagrees with other **isomers** of the N = 80 isotones shows that most of the levels observed in the **isomeric** decays fit trends suggested by neighboring **isomers**. Only the assumed 4+ state of 134Xem disagrees with such trends; the possibility was therefore considered of a 2nd 4+ state satisfying the level trends and lying near the 7 - **isomeric** level. The γ-spectra, however, do not indicate that the **isomer** decays via this alternative 4+ level, the upper limit for such branching being estimated at 2% of the observed decay mode. The techniques developed for Xe gas samples in the 134Xem expts. were applicable to investigation of other **isomers** in Xe. The **isomers** 127Xem(t1/2 = 74 sec.) and 125Xem(t1/2 = 58 sec.) were studied. Each was observed to decay by a 2.**gamma** .-cascade consistent with a 9/2-E3→ 3/2+ M1→ 1/2+ scheme. The corresponding γ-energies are 172.5 ± 1 and 125.1 ± 1 kev. in 127Xem, and 142.3 ± 0.5 and 112.1 ± 0.5 kev. in 125Xem. The suggestion in Nuclear Data Sheets that a 75-kev. transition also occurs in the decay of 125Xem was investigated; after examination of various background contributions it was concluded that the 75-kev. peaks in various γ-spectra do not correspond to a nuclear transition. The internal conversion measurements on 125Xem are also consistent with this result: from the assignment of E3 for the 142-kev. transition (determined from αLMNO = 1.83 ± 0.22), the assignment of M1 for the 112-kev. transition (determined from αK = 0.47 ± 0.07), and the assumption that the 75-kev. peak is not a nuclear transition (thus αK = 0), the K x-ray intensity observed in the spectrum could be explained. The statistical accuracy of the 127Xem conversion e- lines was not sufficient to make multipolarity assignments; however, the line intensities are consistent with a 9/2- E3→ 3/2+ M1→ 1/2+ decay scheme. The 1/2+ ground state is known for 127Xe and assumed for 125Xe by analogy. The appearance of a 9/2- state in this nuclear region is not compatible with shell model predictions and suggests that nuclear deformation may be present. For those **isomers** above which are created by thermal n capture, the thermal n activation cross sections were measured: αth(136Bam) = 13.9 ± 0.7 mb., αth(127Xem) = 0.23 ± 0.07 b., αth(125Xem) = 18 ± 4 b. These measurements were made for comparison with statistical theories for cross section ratios. The resonance integrals were also estimated for these **isomers**.

L145 ANSWER 43 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1966:462598 HCAPLUS
DN 65:62598
OREF 65:11650h,11651a-h,11652a-h
TI An 8- **isomeric** state in the 106-neutron nuclei: 180W, 182Os, and 184Pt
AU Burde, J.; Diamond, R. M.; Stephens, F. S.
CS Univ. of California, Berkeley
SO Nuclear Physics (**1966**), 85(3), 481-503
CODEN: NUPHA7; ISSN: 0029-5582
DT Journal
LA English
AB The decay of a 2-n, 8-, **isomeric** state was observed in 3 nuclei with 106 n. The **half-lives** of these **isomers** are in the region of 1 msec. In each of the isotones 180Wm, 182Osm, and 184Ptm, there were observed 5 prominent transitions. Four of these are the E2 transitions of the 8 → 6 → 4 → 2 → 0 cascade in the ground-state band. The 5th transition is a very hindered E1 that **de-excites** an 8-, 8 **isomeric** level and populates the 8+, 0 level of the ground-state band. Despite the appreciable difference between the properties of these nuclei, as can be seen by comparing the well-developed rotational spectrum of 180W with that of the poor rotor 184Pt, the **isomeric** transitions seem to exhibit a striking similarity. In 184Ptm, the **isomeric** decay also populates other levels. Among them were tentatively identified 2 members of the β-vibrational band. Their position relative to the groundstate band in this transitional-region nucleus is of special interest. 19 references.
IT Energy levels
(**isomeric** 8- state in 106-neutron nuclei)
IT Atomic **nuclei**
(**isomers**, of 8- in 106-neutron nuclei)
IT **Gamma rays**
(transitions, from **metastable** states in 106-neutron nuclei)
IT 14265-77-1, Hafnium, **isotope** of mass 178 14265-79-3, Tungsten, **isotope** of mass 180 14993-36-3, Osmium, **isotope** of mass 182 14993-38-5, Platinum, **isotope** of mass 184 15751-45-8, Ytterbium, **isotope** of mass 176
(**nuclear metastable** state of 8- in, and its γ-decay)

L145 ANSWER 44 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1966:401464 HCAPLUS
DN 65:1464
OREF 65:235e-g
TI Coulomb excitation of electric octupole transitions in 115In nuclei
AU Gangrskii, Yu. P.; Lemberg, I. Kh.
CS Phys.-Tech. Inst., Leningrad
SO Yadernaya Fizika (**1966**), 3(3), 461-4
CODEN: IDFZA7; ISSN: 0044-0027
DT Journal
LA Russian
AB The Coulomb excitation of elec. octupole transitions has been studied hitherto only on even-even nuclei, because the probability of these transitions in odd nuclei is low and the lines of **.gamma** .-radiation emitted in connection with them are weak. However, these lines can be measured more precisely when formation of an **isomeric** state takes place, because the lifetime of **isomeric** levels is usually rather high and **deexcitation** of octupole transitions from them (on excitation of levels above the **isomeric**) takes place at a time after irradiation at which the intensity of background . **gamma**.-emission has **decreased**. The Coulomb excitation of those levels of 115In was studied which are **deexcited** to the ground state mainly by a **cascade** effect over a level with an energy of 335 kev. and **half-life** T1/2 = 4.5 hrs. that develops in an **isomeric** state of this **nucleus**. The excitation of levels was determined on the basis of the yield of **.gamma** .-quanta emitted on irradiation of In with a natural isotopic composition (95.8% 115In) with α-particles accelerated to 7.5-11.7 Mev. The exptl. observed relation between this yield at the energy of α-particles could be explained by elec. octupole excitation of 2 groups of levels, the energies of which (0.595 and 0.825 Mev.; 2.06, 2.17, and 2.49 Mev.) were known from earlier spectroscopic work. The excited states for levels of the second group were analogous to collective excited states with characteristics 3- in neighboring even-even **nuclei** (**isotopes** of Cd and Sn).
IT Energy levels
(of indium-115, Coulomb excitation of)
IT Energy levels
(of tellurium-125, lifetime of)
IT **Gamma rays**
(transitions, in In, Coulomb excitation of elec. octupole)
IT 13966-28-4 13982-08-6 14265-78-2 15741-32-9
(Derived from data in the 7th Collective Formula Index (1962-1966))
IT 7440-74-6P, Indium
RL: PREP (Preparation)
(alpha-ray bombardment of, Coulomb excitation of elec. octupole transitions by, **γ-ray** yield and)
IT 12587-46-1P, Alpha ray
RL: PREP (Preparation)
(indium bombarded by, Coulomb excitation of elec. octupole transitions in, **γ-ray** yield and)

L145 ANSWER 45 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1965:13374 HCAPLUS
DN 62:13374
OREF 62:2428e-g
TI Excitation of isomeric states in 103Rh and 115In by electrons
AU Kruger, P.; Crawford, T. M.; Goldemberg, J.; Barber, W. C.
CS Stanford Univ., Stanford, CA
SO Nuclear Physics (**1965**), 62(4), 584-92
CODEN: NUPHA7; ISSN: 0029-5582
DT Journal
LA English
AB Yields for the production of the 57-min. isomeric state of 103Rh and for the 4.5-hr. state of 115In were measured both for e and photons of energies between 7 and 18 mev. The e were produced by the Stanford Mark II Linear Accelerator, and the irradiations were made with the "stacked foil" method. The sensitivity of the e/photon yield ratio to the multipole character of the reaction was used to obtain information on the **absorption** process of **γ-rays**. The results of 103Rh lie somewhat lower than, but approx. parallel to, the **theoretical** results expected for elec. dipole **absorption** . This type of result was observed previously where elec. dipole **absorption** is the dominating **mechanism**. The results for 115In, on the contrary, are more than a factor of 2 higher than expected for dipole **absorption**, indicating that quadrupole or higher multipole transitions have a dominating role. During the experiment the reaction 103Rh(**γ**,2p)101Tc was observed. The cross section for this reaction is .apprx.3 orders of magnitude smaller than that for the (**γ**,**γ'**) reaction.
IT **Gamma rays**
(**absorption** or capture of, by 122Te)
IT **Gamma rays**
(bombardment by, of In and Rh, excitation of **nuclear isomeric** states in)
IT Energy levels
(of indium-115 and 103Rh, excitation of **isomeric**, by electron or **γ-ray** bombardment)
IT Energy levels
(of tellurium 122, lifetime of)
IT 183748-02-9, Electron
(bombardment, of In and Rh, excitation of **nuclear isomeric** states in)
IT 14913-92-9, Technetium, isotope of mass 101
(from Rh by **γ-ray** action)
IT 12586-59-3, Protons
(from rhodium by **γ-ray** action)
IT 7440-16-6, Rhodium 7440-74-6, Indium
(**nuclear isomeric** states in, excited by electrons or **γ-rays**)

L145 ANSWER 46 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1964:459265 HCAPLUS
DN 61:59265
OREF 61:10252b-d
TI Chemical effects of **nuclear isomeric** transition of80Brm in glassy and polycrystalline alkyl bromides
AU Hahne, Rolf M. A.; Willard, John E.
CS Univ. of Wisconsin, Madison
SO Journal of Physical Chemistry (**1964**), 68(9), 2582-9
CODEN: JPCHAX; ISSN: 0022-3654
DT Journal
LA Unavailable
AB The chemical fate of 80Br atoms born from the 80Brm → 80Br isomeric transition was determined in glassy and polycryst. PrBr and BuBr under varied conditions of Br2. concentration, temperature, sample preparation, and parent chemical species of the 80Brm. The organic yields from Br80Brm in polycryst. PrBr are essentially independent of Br2 concentration over a wide range, supporting other evidence that the Br is present as a homogeneous solution and indicating that the fate of the 80Br is determined very close to the site of birth. Organic yields from Br80Brm in BuBr are higher in the glassy state than in the polycryst. state. In both glassy and polycryst. BuBr the organic yields when the 80Brm is in the form of Bu80Brm are much higher than when it is in the form of Br80Brm. In polycryst. samples they are not appreciably **changed** by the presence of 5 + 10-3 mole fraction of Br2but are significantly reduced by this concentration of Br in glassy samples. The organic yield from 0.01 mole fraction Br2(80Brm) in polycryst. n-C6H14 at 77°K. is **increased** from 3 to 20% by addition of 0.01 mole fraction of PrBr. Electron spin resonance (e.s.r.) observations show that the nature and annealing characteristics of the trapped radicals produced in solid BuBr by γ-irradiation differ for the glassy and polycryst. forms. There is also a substantial difference in the ratios of individual stable products formed by the γ-irradiation of glassy PrBr as compared to the crystalline form.
IT **Gamma rays**
(alkyl bromide bombarded by, magnetic resonance **absorption** of)
IT **Gamma rays**
(from yttrium-90m)
IT Alkyl bromides
(hot-atom reactions of 80Brm in neutron-bombarded and magnetic resonance **absorption** of γ-irradiated)
IT Hot-atom chemistry
(of bromine-80, **metastable**, in neutron-bombarded alkyl bromides)
IT 106-94-5, Propane, 1-bromo-
(bromine-80m hot-atom reactions in neutron bombarded and magnetic resonance **absorption** of γ-irradiated)
IT 110-54-3, Hexane
(bromine-80m hot-atom reactions in polycryst.)
IT 109-65-9, Butane, 1-bromo-
(hot-atom reactions of 80Brm in neutron-bombarded and magnetic resonance **absorption** of γ-irradiated)
IT 7726-95-6, Bromine
(isotope of mass 80, hot-atom reactions of **metastable**, in neutron-bombarded alkyl bromides)

L145 ANSWER 47 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1962:29554 HCAPLUS
DN 56:29554
OREF 56:5587a-f
TI Photodissociation of complex nuclei at energies between the mesonic threshold and 1150 m.e.v.
AU Roos, Charles E.; Peterson, Vincent Z.
CS Vanderbilt Univ., Nashville, TN
SO Physical Review (**1961**), 124, 1610-22
CODEN: PHRVAO; ISSN: 0031-899X
DT Journal
LA Unavailable
AB The photodisintegration of complex nuclei by **γ- rays** up to 1150 m.e.v. was studied by exposing nuclear emulsion to **bremsstrahlung** and observing the photostars produced. Exposures were made at 16 peak energies, 250-1150 m.e.v. Nearly 10,000 photostars were analyzed for star frequency, prong number, angular distribution, and (at 1143 m.e.v.) the visible energy release per star. The **bremsstrahlung** yield of multiprong (≥2-prong) stars increases abruptly as photons capable of producing pions are included. The cross section per photon, derived from the **bremsstrahlung** yield by the photon difference method, is essentially constant at 250 b./nucleon at all energies above 300 m.e.v. A model for photostar production is given which involves photopion production followed by **absorption** or scattering of the pion and recoil nucleon. Exptl. free-nucleon photopion cross sections are used, together with the Monte Carlo calcns. of Metropolis et al., to determine the probability for star formation. Good agreement with both the shape and magnitude of the excitation curve is obtained if nuclear motion is included. Mean and maximum prong number for photostars are the same as for stars produced by pions or protons of equal available energy. The mean free paths in nuclear matter of pions and protons are short, so that photostar yields are a measure of the integrated total photomeson cross section. More than 95% of the multiprong stars made by 1-b.e.v. **bremsstrahlung** are made by photons with energies exceeding that of the pion production threshold of 150 m.e.v. Most of the 1-prong events are produced by photons below 150 m.e.v., and the yield is consistent with giant resonance (.**gamma** .,p) reactions plus pseudodeuteron photodisintegration, a process with a cross section which **decreases** rapidly as the photon energy increases. Variation of mean prong number with energy and comparison with nuclear **cascade** calcns. suggests that the excitation of the residual nucleus is nearly constant at 100 m.e.v. over a wide range of incident photon energies. The visible energy release per photostar shows a linear dependence on prong number, and more than half of the photon energy is carried away by neutral particles.
IT **Gamma rays**
(interactions, in photographic nuclear emulsion)
IT 7429-91-6P, Dysprosium 7440-15-5P, Rhenium 7440-20-2P, Scandium 7440-27-9P, Terbium 7440-30-4P, Thulium 7440-58-6P, Hafnium 7440-64-4P, Ytterbium 15749-99-2P, Holmium, isotope of mass 171 15766-57-1P, Osmium, isotope of mass 194 51633-90-0P, Mercury, isotope of mass 210
(isotopes of, **γ-ray** bombardment of, production of short-lived isomers in)
IT 7440-18-8P, Ruthenium 7440-43-9P, Cadmium
(isotopes of, **γ-ray** bombardment of, production of shortlived isomers in)

L145 ANSWER 49 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1947:23614 HCAPLUS
DN 41:23614
OREF 41:4712d-h
TI **Isomeric nuclei**
AU Trumpy, B.
CS Geophys. Inst., Bergen, Norway
SO Bergens Museums Arbok (**1944**), Volume Date 1943, ((Natural Sci. Sect.), No. 2, Pub. No. 10), 28 pp.
DT Journal
LA English
AB cf. C.A. 37, 2652.8; 38, 6188.1; 40, 6973.2. The **half- life** periods of 38 **isomeric** atomic **nuclei** with stable ground states are tabulated. In most cases several **isomeric nuclei** were found for one and the same atom, and in many cases they must with certainty be ascribed to the same atomic nucleus, as, e.g., with Al and Au which have only one stable **isotope.** This means that several **metastable** states can combine with one and the same stable ground state. The critical excitation energy for one particular element is regularly higher the shorter the lifetime of the **metastable** state. This shows that the different **metastable** states do not combine with the same higher-energy state, and is further in good agreement with the **theoretical** results. For a particular atomic nucleus the energy of the excited **metastable** states increases with **decreasing** lifetime. A more comprehensive energy spectrum of **metastable** states probably exists than that observed in each sep. case. For very short and very long lifetimes the method of investigation fails, in the latter case owing to the slight intensity of the radiation. In these regions of the life periods possibly **metastable** states exist which have escaped observation. For a particular **metastable** state an approx. radiation equilibrium will occur after an irradiation period 4 times as great as the **half-life** period of the **isomeric nucleus** in question. In the equilibrium state as many **isomeric nuclei** are created per time unit as are transformed by radiation. The radiation intensity at equilibrium must be assumed to be a measure of the velocity of formation, i.e. the probability of the creation of a particular **metastable** state. This view may only be applied to the different **metastable** states of one and the same atom, which are all investigated in one particular experiment with the same irradiation and the same counter tube. The radiation intensity **decreases** rapidly within such an **isomeric** series. From this it can be concluded that the probability of the creation of a **metastable** state in an atomic nucleus **decreases** with increasing lifetime. The condition is that the working voltage of the **x-ray** tube lies sufficiently above the critical excitation energy for all **metastable** states. The results are discussed.
IT Atomic **nuclei**
(**isomeric**)
IT Radioactivity
(of **isomeric nuclei**)

L145 ANSWER 50 OF 50 HCAPLUS COPYRIGHT ACS on STN
AN 1938:38153 HCAPLUS
DN 32:38153
OREF 32:5297b-d
TI **Nuclear isomerism** of rhodium
AU Reddemann, Hermann
SO Naturwissenschaften (**1938**), 26, 125
CODEN: NATWAY; ISSN: 0028-1042
DT Journal
LA Unavailable
AB In Rh activated by rapid D-D neutrons the activity of **half life** 40 sec. is about 3 times that of **half life** 4 min. Upon activation in paraffin, i. e., **with slow neutrons**, the ratio **increases** to about 11:1. Coating of the Rh with Cd did not **change** this. Both periods belong to **isomeric nuclei** of Rh104; evidently the relative probability for formation of these **isomers** from the intermediary stage **varies** with the energy of the neutrons captured. Similar results are found with Br: slow and fast neutrons cause a ratio variation from 0.56 to 2 (cf. Soltan and Wertenstein, C. A. 32, 2020.3), although in this case the process is complicated by the possibility of two methods of formation.
IT Atomic nuclei
(neutron-bombarded)
IT 12586-31-1, **Neutrons**
(**absorption or** capture **of**)
IT 7440-43-9, Cadmium
(effect on activity of neutron-bombarded Rh)
IT 12586-31-1, Neutrons
(from deuterium and excitation produced by them)
IT 7726-95-6, Bromine
(**isotopes** of, by neutron action)
IT 7440-16-6, Rhodium
(neutron-bombarded, and its **nuclear isomerism**)
IT 7782-39-0, Deuterium
(neutrons from)

L172 ANSWER 2 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 2003:840099 HCAPLUS
DN 139:342423
ED Entered STN: 27 Oct 2003
TI **Nuclear isomers** and photo **nuclear** excitation
AU Shizuma, Toshiyuki; Hayakawa, Takehito
CS Advanced Photon Research Center, Kansai Research Establishment, Japan Atomic Energy Research Institute, Ibaraki, 319-1195, Japan
SO JAERI-Conf (**2003**), 2003-008(Proceedings of the Fourth Symposium on Advanced Photon Research, 2003), 252-255
CODEN: JECNEC
PB Japan Atomic Energy Research Institute
DT Journal
LA Japanese
CC 70-1 (Nuclear Phenomena)
AB In the A = 180 region, **isomers** (excited states in **nuclei** with comparatively long **half-lives**) arise due to the symmetry of nuclear shapes around the principal axis. This symmetry is related to the K **quantum** number, and therefore the associated **isomers** are called K **isomers**. Here we report on recent results of nuclear structure studies of high-K **isomers**, and discuss the related physics particularly using high intensity photons such as laser Compton scattering **gamma rays** and laser induced **gamma rays**.
ST **nuclear isomer** high K structure photoexcitation
IT **Nuclear energy level**
Nuclear level excitation
(**isomer**; structure studies of high-K **nuclear isomers** excited using high intensity photons such as laser Compton scattering **gamma rays** and laser induced **gamma rays**)
IT **Gamma ray** interactions
Lasers
Nuclear structure
(structure studies of high-K **nuclear isomers** excited using high intensity photons such as laser Compton scattering **gamma rays** and laser induced **gamma rays**)

L172 ANSWER 3 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 2003:412981 HCAPLUS
DN 138:391551
ED Entered STN: 30 May 2003
TI **Coupling** of valence particles/holes to 68,70Ni studied via measurements of the B(E2) strength in 67,69,70Ni and 71Cu
AU Mach, H.; Lewitowicz, M.; Stanoiu, M.; Becker, F.; Blomqvist, J.
CS ISV, Uppsala University, Nykoping, S 611-82, Swed.
SO Nuclear Physics A (**2003**), A719, 213c-216c
CODEN: NUPABL; ISSN: 0375-9474
PB Elsevier Science B.V.
DT Journal
LA English
CC 70-1 (Nuclear Phenomena)
AB We have measured by means of the Advanced Time-Delayed **γ. gamma.**(t) method the **half-lives** of the following levels: 694 keV in 67Ni, 915 keV and 2552 keV in 69Ni, 2677 keV in 70Ni and 2622 keV in 71Cu. Measurements were performed using an array of four small BaF2 detectors at the LISE spectrometer in GANIL following the fragmentation of 76Ge. It constitutes the first application of such technique to exotic nuclei. A close agreement between the exptl. deduced B(E2) rates and the shell model predictions confirm the model interpretation of the μs **isomers** in 69,70Ni and 71Cu.
ST nickel **isotope** level **isomer**; copper 71 level **isomer**
IT **Nuclear transition**
(B(E2) strength in 67,69,70Ni and 71Cu from nuclear fragmentation of 76Ge)
IT **Gamma ray**
Nuclear energy level
(in 67,69,70Ni and 71Cu from nuclear fragmentation of 76Ge)
IT **Nuclear energy level**
(**isomer**; in 67,69,70Ni and 71Cu from nuclear fragmentation of 76Ge)
IT 14687-41-3, Ge 76, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(B(E2) strength in 67,69,70Ni and 71Cu from nuclear fragmentation of 76Ge)
IT 15766-16-2, Nickel 67, properties 29675-34-1, Nickel 69, properties
30017-28-8, Copper 71, properties 36378-25-3, Nickel 70, properties
(**half-lives** of levels in)
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
(1) Grawe, H; Nucl Phys A 2002, V704, P211c
(2) Grawe, H; Proc Workshop on "The beta-decay, from weak interaction to nuclear structure" 1999, P211
(3) Grzywacz, R; Phys Rev Lett 1998, V81, P766 HCAPLUS
(4) Ishii, T; Phys Rev Lett 1998, V81, P4100 HCAPLUS
(5) Mach, H; Nucl Instr and Meth A 1989, V280(49)
(6) Mach, H; Nucl Phys A 1991, V523, P197
(7) Moszynski, M; Nucl Instr and Meth A 1989, V277, P407
(8) Pawlat, T; Nucl Phys A 1994, V574, P623 HCAPLUS

L172 ANSWER 7 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 2000:403324 HCAPLUS
DN 133:95469
ED Entered STN: 19 Jun 2000
TI **Coupling** modes in doubly odd nuclei: The case of 172Ta
AU Hojman, D.; Cardona, M. A.; Davidson, M.; Debray, M. E.; Kreiner, A. J.; Le Blanc, F.; Burlon, A.; Davidson, J.; Levinton, G.; Somacal, H.; Kesque, J. M.; Naab, F.; Ozafran, M.; Stoliar, P.; Vazquez, M.; Napoli, D. R.; Bazzacco, D.; Blasi, N.; Lenzi, S. M.; Lo Bianco, G.; Rossi Alvarez, C.
CS Departamento de Fisica, Comision Nacional de Energia Atomica, Buenos Aires, 1429, Argent.
SO Physical Review C: Nuclear Physics (**2000**), 61(6), 064322/1-064322/21
CODEN: PRVCAN; ISSN: 0556-2813
PB American Physical Society
DT Journal
LA English
CC 70-1 (Nuclear Phenomena)
AB High-spin states in doubly odd 172Ta were investigated in two different expts. by means of in-beam **γ-ray** and internal-conversion electron spectroscopy techniques. Excited states of 172Ta were populated using the 159Tb(18O,5n) and 165Ho(12C,5n) reactions at beam energies of 93 and 79 MeV, resp. Eleven rotational bands, including twin bands in the normal deformation regime, have been observed and their configurations discussed. Three **isomeric** states have been found and their **half-lives** measured. Alignments, band crossing frequencies, and electromagnetic properties have been analyzed in the framework of the cranking model.
ST tantalum 172 level **isomeric**; internal conversion electron
tantalum 172; **gamma** tantalum 172
IT **Nuclear energy level**
(**isomer**; of tantalum 172)
IT Electron internal conversion
Gamma ray
Nuclear energy level
Nuclear transition
Rotational nuclear level
(of tantalum 172)
IT 15759-26-9, Tantalum 172, properties
RL: PRP (Properties)
(nuclear high-spin states in)
IT 7440-27-9, Terbium, reactions 7440-60-0, Holmium, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(tantalum 172 levels from reaction of)

L172 ANSWER 8 OF 12 HCAPLUS COPYRIGHT ACS on STN

AN 1977:590358 HCAPLUS

DN 87:190358

OREF 87:29995a,29998a

TI Magnetic moments of 8+ and 11- states of a molybdenum-92 nucleus and anomalous orbital magnetism of protons in the region of Z = 40-44

AU Kuznichenko, A. V.; Lebedev, V. N.; Levon, A. I.; Nemets, O. F.

CS Inst. Yad. Issled., Kiev, USSR

SO Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya (**1977**), 41(8), 1624-33
CODEN: IANFAY; ISSN: 0367-6765

DT Journal

LA Russian

CC 70-2 (Nuclear Phenomena)

AB The 90Zr(α, 2n)92Mo reaction at 27 MeV energy of the α-particle is applied to produce 92Mo [14191-67-4] in 2 of its **isomeric** states: 2765 keV with spin-parity value of 8+ and lifetime of 8.8 ns, and 4487 keV with spin-parity 11- and **halflife** of 220 ns. Angular distributions of **γ-quanta** from various states of 92Mo placed in an external magnetic field exhibit an intensity modulation due to the Larmor precession of that **nucleus** in its **isomeric** states. This exptl. method gives the values of the gyroscopic factors for the 2 **isomeric** staes under study. The exptl. values are analyzed in terms of their deviation from single-particle model values of the g-factors. The concept of the additivity of magnetic moments is discussed, and various correction terms are introduced. Also the g-factors of the p states of other nuclei in the region around Zr are discussed in the framework of a model with a spin polarization of the core of the nucleus.

ST molybdenum 92 level g factor

IT Nuclear g-factor
Nuclear magnetic moment
(of molybdenum-92 **isomeric** states)

IT 14191-67-4, properties
RL: PRP (Properties)
(**nuclear energy levels** of, g-factor of)

L172 ANSWER 10 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 1967:469570 HCAPLUS
DN 67:69570
OREF 67:13089a
TI High resolution studies of the **γ-rays** from **isomeric** states with **half-lives** of 10 μsec.-30 msec. in nuclei with Z = 63-83
AU Conlon, Thomas W.
SO U. S. A. E. C. (1966), PUC-937-217, 202 pp. Avail.: Dep. mn; CFSTI
From: Nucl. Sci. Abstr. 1967, 21(6), 10007
CODEN: XAERAK
LA English
AB **Isomeric** states with **half-lives** between 10 μsec. and 30 msec. in the atomic number range 63 ≤ Z ≤ 83 were excited principally by the (p,n) and (p,2n) reactions, using 17.5-Mev. p. The **γ-rays** involved in the decay of the **isomeric** states were measured by using a Li-drifted Ge detector. Nine new **isomers** were produced which have **half-lives** in the quoted range. For 6 of these the **isomeric nucleus** has been uniquely identified and the multipolarities-of the **γ-rays** involved have in most cases been assigned. These **isomeric nuclei** and the measured-value-of the **half-lives** (in μsec.) are: 153Gd, 75.8; 159Dy, 122.3; 165Tm, 80.3; 172Lu, 434; 191Pt, 107; and 207Bi, 174. The decay of the **isomeric** states in 159Dy and 207Bi give rise to particularly complicated spectra; in each case .apprx.10 . **gamma.-rays** are involved. A unique scheme for the decay of the 159Dy **isomer** has been established; for the 207Bi **isomer**, a level scheme has been constructed which is consistent with the intensities and energies of the observed transitions. The remaining 3 new **isomers** were observed **following bombardment** of Gd, Hf, and 208Pb; their respective **half- lives** are: 180, 6.1 + 103, 500 μsec. Fourteen **isomers** which have been previously reported were excited in this work. The **isomeric nuclei** together with the **halflives** in μsec. are: 151Eu, 62.7; 153Tb, 190; 173Lu, 87.5; 175Hf, 54; 181Ta, 22.0; 180W, 5.53 + 103; 181W, 16.0; 187Os, 31; 187Ir, 29 + 103; 189Ir, 12.3 + 103; 199Tl, 29.2 + 103; 200Tl, 33 + 103; 201Tl, 2.7 + 103; and 206Pb, 142. In almost all of these cases, the precision of the **known** transition energies and **known halflives** were greatly improved. The multipolarities of the transitions involved and the identity of the **isomeric nuclei** have been verified. The origin of the **isomeric** states are discussed principally in terms of the Nilsson model for odd-A nuclei. By considering the Nilsson states available to the last 2 particles, the **isomerism** in the even-A nuclei 172Lu and 180W can be understood. A state which may be described by the **coupling** of 3 particles, each described by Nilsson orbitals, is suggested to explain the observed **isomer** in 159Dy. Reduced matrix elements were extracted for the **isomeric** transitions and were examined to bring out possible systematic effects.
IT Matrixes
(for **gamma rays** from **isomeric** transitions)
IT **Nuclear energy levels**
(lifetime of, determination of short)
IT **Gamma rays**
(transitions of, multipolarity of)
IT 12586-31-1, Neutrons
(from proton **bombardment**, short-lived **nuclear energy level** excitation in)
IT 12586-59-3, Protons
(neutrons from **bombardment** by, short-lived **nuclear energy level** excitation in)
IT 13982-38-2, Bismuth, **isotope** of mass 207, properties
(**nuclear energy levels** of, determination of short **half-life** of)

L172 ANSWER 11 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 1967:449224 HCAPLUS
DN 67:49224
OREF 67:9222h,9223a
ED Entered STN: 12 May 1984
TI Activation of short lived **isomers** of stable **nuclei** by indium-116m **γ-rays**
AU Abrams, I.; Pelekis, L.
SO Latvijas PSR Zinatnu Akademijas Vestis, Fizikas un Tehnisko Zinatnu Serija (1967), (1), 3-6
CODEN: LZFTA6; ISSN: 0321-1673
DT Journal
LA Russian
CC 75 (Nuclear Phenomena)
AB Inelastic scattering of **γ-quanta** on stable nuclei by using γ-radiations from a radioactive **isotope** is investigated. The method for studying the resultant short lived **isomers** with **half life** of 2-50 sec. is described. By inelastic 116Im **γ-ray** scattering (flux = 1.1 + 1012 **γ-quanta** /cm.2-sec.) the following short lived **isomers** were obtained: 77Sem, 79Brm, 107Agm, 109Agm, 167Erm, 179Hfm. The **halflives** the activation cross sections, and the energy of the **isomeric** transitions were determined
ST SELENIUM 77M; **GAMMA** SCATTERING; BROMINE 79M; ERBIUM 167M; SILVER 107M 109M; INDIUM 116M **GAMMA**; HAFNIUM 179M
IT **Gamma rays**
(bombardment, activation of short-lived **isomers** of stable **nuclei** by)
IT **Nuclear energy levels**
(of **isomers**, γ-activation of)
IT 14265-76-0P, preparation 14336-94-8P, properties 14378-37-1P, preparation 14378-38-2P, preparation 14380-60-0P, preparation 14681-72-2P, preparation
RL: PREP (Preparation)
(**nuclear isomer** of, activation by γ **-rays**)

L172 ANSWER 12 OF 12 HCAPLUS COPYRIGHT ACS on STN
AN 1942:14412 HCAPLUS
DN 36:14412
OREF 36:2203d-g
TI **Isomerism** of atomic **nuclei**
AU Rusinov, L. I.; Yuzefovich, A. A.
SO Journal of Physics (Moscow) (1940), 3, 281-6
CODEN: JOPYA6; ISSN: 0368-3400
DT Journal
LA English
CC 3 (Subatomic Phenomena and Radiochemistry)
AB cf. C. A. 35, 3895.2. **Isomeric nuclei**, according to the Bohr-Weizsacker theory (C. A. 31, 3378.3), have the same atomic number and the same mass number in 2 different energy states. These are distinguished by a large difference in angular momentum and the **quantum** mech. prohibitions make the transition of the nucleus from the excited to the ground state highly improbable. The theory is applied to the exptl. data on the β and γ transformations of the radioactive Br-80 nucleus. Each β transition is accompanied by the emission of a soft electron of approx. 30 e. kv., determined by **absorption** in cellophane, and interpreted as an electron of internal conversion. This requires that characteristic **x- rays** be emitted in the process of **decay** of radioactive Br. Electromagnetic radiation of intensity **increasing** with the **half-life** of the **isomeric** Br-80 **nucleus** is found to have a wave length of 1 A. The observed rays from the **isomeric** Br-80 **nucleus** are differently **absorbed** in filters of As and Se with equal surfaces masses. The total excitation energy of the **metastable** Br-80 nucleus is 85 e. kv. A transition takes place to a lower excited level differing by 48 e. kv., performed only by internal electron conversion. From the 37-e. kv. level a transition occurs to the ground state of the Br-80 nucleus; the coefficient of internal conversion is approx. 50%, which, according to the theory, represents a dipole transition. Direct transition from the 85-e. kv. to the ground level does not occur.
IT Atomic **nuclei**
(**isomerism** of)
IT 7726-95-6, Bromine
(**isomers** of mass 80, **nuclear transitions** in)

L175 ANSWER 1 OF 1 HCAPLUS COPYRIGHT ACS on STN
AN 2004:444957 HCAPLUS
DN 141:147683
ED Entered STN: 02 Jun 2004
TI Implementing quantum gates on oriented optical isomers
AU Sola, Ignacio R.; Malinovsky, Vladimir S.; Santamaria, Jesus
CS Department of Chemistry, Princeton University, Princeton, NJ, 08544, USA
SO Journal of Chemical Physics (**2004**), 120(23), 10955-10960
CODEN: JCPSA6; ISSN: 0021-9606
PB American Institute of Physics
DT Journal
LA English
CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22, 65
AB Optical enantiomers are proposed to encode mol. two-qubit information processing. Using sequences of pairs of nonresonant optimally polarized pulses, different schemes to implement quantum gates, and to prepare entangled states, are described. We discuss the role of the entanglement phase and the robustness of the pulse sequences which depend on the area theorem. Finally, possible scenarios to generalize the schemes to n-qubit systems are suggested.
ST quantum gate oriented enantiomer nonresonant polarized pulse pair
IT Isomerization
(enantiomerization; implementing quantum gates on oriented optical isomers using sequences of pairs of nonresonant optimally polarized pulses)
IT Energy level
(**entangled**; implementing **quantum** gates on oriented optical **isomers** using sequences of pairs of nonresonant optimally polarized pulses)
IT Enantiomers
(implementing quantum gates on oriented optical isomers using sequences of pairs of nonresonant optimally polarized pulses)
IT Laser radiation
(pulsed, polarized; implementing quantum gates on oriented optical isomers using sequences of pairs of nonresonant optimally polarized pulses)
IT Polarized laser radiation
(pulsed; implementing quantum gates on oriented optical isomers using sequences of pairs of nonresonant optimally polarized pulses)
IT Information theory
(quantum; implementing quantum gates on oriented optical isomers using sequences of pairs of nonresonant optimally polarized pulses)
IT 14056-58-7, Phosphinothioic acid
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(implementing quantum gates on oriented optical isomers of)

10/599,555

— Search Histories —

25aug08 12:39:25 User259284 Session D4356.2

Dialog File 2:INSPEC 1898-2008/Jul W4
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Set	Items	Description
S1	20612	ENTANGL?????? OR QUANT?????(3N)COUPL?????
S2	3020	S1(5N)(PHOTON???? OR ENERGY OR ENERGIES OR PARTICLES OR RADIATION OR RAY OR GAMMA OR X OR IRRADIAT????? OR LIGHT OR LASE???)
S3	2125	ENTANGL???????(5N)(PHOTON???? OR ENERGY OR ENERGIES OR PARTICLES OR RADIATION OR RAY OR GAMMA OR X OR IRRADIAT????? OR LIGHT OR LASE???)
S4	1852	QUANT?????(3N)COUPL?????(5N)(PHOTON???? OR ENERGY OR ENERGIES OR PARTICLES OR RADIATION OR RAY OR GAMMA OR X OR IRRADIAT????? OR LIGHT OR LASE???)
S5	3954	S3 OR S4
S6	3954	S2:S4
S7	603	HALFLI?
S8	8366	HALF()LIFE??
S9	3854	HALF()LIVE??
S10	109845	LIFETIME??
S11	5509	LIFE()TIME
S12	979	LIFE()TIMES
S13	17333	DECAY?????(2N)(DURATION?? OR PROLONG?????? OR SHORTEN?????? OR LENGTHEN????? OR INTERVAL?? OR TIME OR TIMES OR SEGMENT???? OR SECONDS OR MINUTES OR HOURS OR DAYS OR INSTANTAN????????)
S14	91	S6 AND S7:S13
S15	0	S14 AND RADIOISOMER?
S16	0	S14 AND ISOMER?
S17	1	S14 AND ISOTOP?
S18	0	S14 AND RADIOISOTOP?
S19	0	S14 AND RADIONUC?
S20	0	S14 AND NUCLIDE??
S21	0	S14 AND NUCLEIDE??
S22	2	S14 AND NUCLEI
S23	2	S14 AND NUCLEUS??
S24	4	S14 AND NUCLEAR
S25	6	S15:S24
S26	28531	GROUND STATES (January 1995)
S27	29575	EXCITED STATES (January 1995)
S28	2083	METASTABLE STATE
S29	20059	NUCLEAR ENERGY LEVEL TRANSITIONS (January 1969)
S30	42350	NUCLEAR ENERGY LEVEL?
S31	10533	BOUND STATES (January 1995)
S32	76	PROBAB???????(5N)DEEXCIT???????
S33	94	PROBAB???????(5N)DE()EXCIT???????
S34	13	S14 AND S26:S31
S35	0	S14 AND S32
S36	0	S14 AND S33
S37	6428	S1:S36 AND ISOMER??????
S38	0	S1:S36 AND RADIOISOMER????????
S39	28	S37 AND ABSOR???????(3N)PHOTON?????
S40	25	S37 AND ABSOR???????(3N)GAMMA
S41	8	S37 AND ABSOR???????(3N)LIGHT
S42	12	S37 AND ABSOR???????(3N)LASE?????
S43	4	S37 AND ABSOR???????(3N)RADIAT??????
S44	2	S37 AND ABSOR???????(3N)IRRADIAT????????
S45	0	S37 AND ABSOR???????(3N)BOMBARD???????
S46	0	S37 AND ABSOR???????(3N)BEAM
S47	0	S37 AND ABSOR???????(3N)BEAMS
S48	0	S37 AND ABSOR???????(3N)BREMS??????????
S49	8	S37 AND ABSOR???????(3N)ENERGY

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S50          0   S37 AND ABSOR???????(3N)CASCAD???????
S51         11   S37 AND ABSOR???????(3N)X
S52         22   S37 AND ABSOR???????(3N)RAY
S53          7   S37 AND ABSOR???????(3N)RAYS
S54         90   S39:S53
S55         90   S54 NOT S25
S56         90   S55 AND S1:S31
S57          0   S55 AND S32:S34
S58          0   S55 AND CHANG??????(3N)(LIFE OR LIFES OR LIVE OR LIVES OR -
                 HALFLI????? OR LIFETIM? OR DECAY????? OR DEEXCIT????????? OR -
                 DE()EXCIT????????? OR PROBABILIT????)
S59          0   S55 AND ENTANGL???????(7N)(LIFE OR LIFES OR LIVE OR LIVES -
                 OR HALFLI????? OR LIFETIM? OR DECAY????? OR DEEXCIT????????? -
                 OR DE()EXCIT????????? OR PROBABILIT????)
S60          0   S55 AND COUPL??????(7N)(LIFE OR LIFES OR LIVE OR LIVES OR -
                 HALFLI????? OR LIFETIM? OR DECAY????? OR DEEXCIT????????? OR -
                 DE()EXCIT????????? OR PROBABILIT????)
S61          2   S55 AND QUANT??????(7N)(LIFE OR LIFES OR LIVE OR LIVES OR -
                 HALFLI????? OR LIFETIM? OR DECAY????? OR DEEXCIT????????? OR -
                 DE()EXCIT????????? OR PROBABILIT????)
S62          0   S55 AND QUANT??????(2N)COUPL??????
S63          0   S55 AND QUANT??????(2N)ENTANG????????
S64          0   S55 AND ENTANG????????
S65          5   S55 AND COUPL?????
S66          4   S55 AND QUANTA??
S67         12   S55 AND QUANTUM??
S68         18   S61:S67
S69         73   S1 AND CI=NB
S70        147   S1 AND CI=CD
S71          5   S1 AND CI=CE
S72         30   S1 AND CI=CS
S73          9   S1 AND CI=SN
S74         70   S1 AND CI=TE
S75          9   S1 AND CI=XE
S76          8   S1 AND CI=HF
S77          1   S1 AND CI=IR
S78          9   S1 AND CI=PT
S79        845   S1 AND CI=IN
S80       1127   S69:S79
S81        158   S80 AND ENTANGL????????
S82        996   S80 AND COUPL?????
S83       1090   S80 AND QUANT????
S84        140   S80 AND ABSOR???????
S85         26   81AND82AND83
S86          2   81AND82AND84
S87        133   83AND82AND84
S88          0   S80 AND ISOMER??????
S89         50   S1 AND ISOMER???????
S90        207   S85:S89
S91        207   S90 NOT S68
S92          9   S91 AND LIFE??????
S93          0   S91 AND HALFLI?
S94          0   S91 AND HALF()LIFE
S95          0   S91 AND HALF()LIFES
S96          0   S91 AND HALF()LIVE
S97          0   S91 AND HALF()LIVES
S98         10   S91 AND DECAY????????
S99          0   S91 AND DEEXCIT?
S100         0   S91 AND DE()EXCIT???????
S101        17   S92:S100
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Inspec
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25aug08 13:04:44 User259284 Session D4356.4

SYSTEM:OS - DIALOG OneSearch

File 6:NTIS 1964-2008/Aug W5
File 23:CSA TECHNOLOGY RESEARCH DATABASE 1963-2008/AUG
File 305:Analytical Abstracts 1980-2008/Jul W1
File 8:Ei Compendex(R) 1884-2008/Aug W3
File 14:Mechanical and Transport Engineer Abstract 1966-2008/Jul
File 25:Weldasearch 1966-2008/Jun
File 31:World Surface Coatings Abs 1976-2008/Jul
File 33:Aluminium Industry Abstracts 1966-2008/Aug
File 35:Dissertation Abs Online 1861-2008/Apr
File 36:MetalBase 1965-20080825
File 46:Corrosion Abstracts 1966-2008/Aug
File 56:Computer and Information Systems Abstracts 1966-2008/Jul
File 57:Electronics & Communications Abstracts 1966-2008/Jul
File 60:ANTE: Abstracts in New Tech & Engineer 1966-2008/Jul
File 61:Civil Engineering Abstracts. 1966-2008/Jul
File 63:Transport Res(TRIS) 1970-2008/Jun
File 64:Environmental Engineering Abstracts 1966-2008/Jun
File 65:Inside Conferences 1993-2008/Aug 21
File 68:Solid State & Superconductivity Abstracts 1966-2008/Aug
File 81:MIRA - Motor Industry Research 2001-2008/Feb
File 95:TEME-Technology & Management 1989-2008/Aug W3
File 96:FLUIDEX 1972-2008/Jun
File 99:Wilson Appl. Sci & Tech Abs 1983-2008/Jul
File 103:Energy SciTec 1974-2008/Jul B2
File 118:ICONDA-Intl Construction 1976-2008/Jul
File 134:Earthquake Engineering Abstracts 1966-2008/Jul
File 144:Pascal 1973-2008/Aug W3
File 239:Mathsci 1940-2008/Sep
File 240:PAPERCHEM 1967-2008/Aug W3
File 248:PIRA 1975-2008/Oct W4
File 293:Engineered Materials Abstracts 1966-2008/Aug
File 315:ChemEng & Biotec Abs 1970-2008/Aug
File 323:RAPRA Rubber & Plastics 1972-2008/Jun
File 335:Ceramic Abstracts/World Ceramics Abstracts 1966-2008/Jul

Set	Items	Description
S1	68	AU=DESBRANDES R?
S2	86	AU=DESBRANDES, R?
S3	0	AU=DES BRANDES, R?
S4	0	AU=DES BRANDES R?
S5	1	AU=VANGENT D?
S6	0	AU=VANGENT, D?
S7	19	AU=VAN GENT, D?
S8	24	AU=VAN GENT D?
S9	1931	AU=COLLINS C?
S10	3156	AU=COLLINS, C?
S11	4313	ENTANGL??????(4N)(PHOTON??? OR ENERGY OR GAMMA)
S12	19	ENTANGL??????(4N)QUANTA??
S13	11268	ENTANGL??????(4N)QUANTUM??
S14	22549	COUPL???(4N)QUANTUM??
S15	407304	ABSOR??????(3N)(PHOTON??? OR ENERGY OR GAMMA OR X OR RAY OR RAYS OR BEAM OR BEAMS OR RADIATION OR LIGHT)
S16	4649	S1:S10
S17	0	16AND11
S18	0	16AND12
S19	0	16AND13
S20	1	16AND14
S21	63	16AND15
S22	0	S21 AND ENTANG????????
S23	2	S21 AND COUPL?????
S24	3	S20 OR S23
S25	2	RD S24 (unique items)
S26	526	LIFETIME?? AND S11:S14
S27	25	LIFE()TIME AND S11:S14

S28	8	LIFE()TIMES AND S11:S14
S29	1298	DECAY???? AND S11:S14
S30	0	HALELI? AND S11:S14
S31	3	HALF()LIFE AND S11:S14
S32	0	HALF()LIFES AND S11:S14
S33	0	HALF()LIVES AND S11:S14
S34	0	HALF()LIVE AND S11:S14
S35	16	DEEXCIT?????? AND S11:S14
S36	21	DE()EXCIT?????? AND S11S14
S37	1350	S27:S36
S38	43	S15 AND S37
S39	2	ISOMER????? AND S37
S40	0	RADIOISOMER????? AND S37
S41	11	RADIOISOTOP????? AND S37
S42	22	ISOTOP????? AND S37
S43	2	NUCLIDES AND S37
S44	0	NUCLEIDES AND S37
S45	0	NUCLEIDE AND S37
S46	0	NUCLIDE AND S37
S47	0	RADIONU?????? AND S37
S48	65	S38:S47
S49	55	RD S48 (unique items)
S50	55	S49 NOT S25
S51	0	S50 AND DEEXCIT??????
S52	2	S50 AND DE()EXCIT??????
S53	11	S50 AND ENTANGL???????
S54	13	S52:S53

Dialog
NPL
page 2 of 2

25aug08 13:17:09 User259284 Session D4356.5

Dialog File 34:SciSearch(R) Cited Ref Sci 1990-2008/Aug W4
(c) The Thomson Corp

Set	Items	Description
S1	379	CR=COLLINS CB, 199?
S2	54	CR=COLLINS CB, 200?
S3	394	S1:S2
S4	56	S3/2005-2008
S5	338	S3 NOT S4
S6	0	S5 AND ENTANGL?????????
S7	0	S5 AND QUANT????(3N)COUPL??????

page 1 of 1

CAS/STN FILE 'HCAPLUS' ENTERED AT 08:03:57 ON 26 AUG 2008

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L1           15 SEA ABB=ON  PLU=ON  ("OLARIU S, 1998, V58, P2560, PHYS REV
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                P333, PHYS REV"/RE OR "OLARIU S, 1999, V44, P45, ROMANIAN
                JOURNAL OF PHYSICS"/RE)
L2           14 SEA ABB=ON  PLU=ON  L1 AND 1998-2004/PY
L3           12 SEA ABB=ON  PLU=ON  L2 AND GAMMA
L4            7 SEA ABB=ON  PLU=ON  L2 AND PHOTON#####
L5            2 SEA ABB=ON  PLU=ON  L2 AND ABSOR#####
L6            2 SEA ABB=ON  PLU=ON  L2 AND ABSOR#######
L7            3 SEA ABB=ON  PLU=ON  L2 AND RATE
L8            0 SEA ABB=ON  PLU=ON  L2 AND CHANG####
L9            9 SEA ABB=ON  PLU=ON  L2 AND DECAY#####
L10           2 SEA ABB=ON  PLU=ON  L2 AND LIFE######
L11           3 SEA ABB=ON  PLU=ON  L2 AND LIVE###
L12           0 SEA ABB=ON  PLU=ON  L2 AND HALFLI######
L13           2 SEA ABB=ON  PLU=ON  L2 AND DEEXCIT?
L14           8 SEA ABB=ON  PLU=ON  L2 AND EXCIT######
L15          14 SEA ABB=ON  PLU=ON  (L2 OR L3 OR L4 OR L5 OR L6 OR L7 OR L8 OR
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                P71, PROC IX CONF LASER OPTICS 98"/RE OR "VYSOTSKII V, 1998,
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                REV"/RE OR "VYSOTSKII V, 1998, V58, P337, PHYS REV C"/RE OR
                "VYSOTSKII V, 1998, V58, P337, PHYSICAL REVIEW C"/RE OR
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                "VYSOTSKII V, 1998, V60, P729, KOLLOID ZH"/RE OR "VYSOTSKII V,
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L17           5 SEA ABB=ON  PLU=ON  ("VYSOTSKII V, 1998, P100, PROCEEDINGS OF
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                1998, P1905, IZV AKAD NAUK SER KHIM"/RE OR "VYSOTSKII V, 1998,
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CAS/STN Fwd cite

P69, PROC IX CONF LASER OPTICS 98"/RE OR "VYSOTSKII V, 1998, P71, PROC IX CONF LASER OPTICS 98"/RE OR "VYSOTSKII V, 1998, P79, TAMOZHENNAYA POLITIKA ROSSII NA DAL NEM VOSTOKE"/RE OR "VYSOTSKII V, 1998, V2, P1739, INTERNATIONAL CONF ON THE PHYSICS OF NUCLEAR SCIENCE AND TECHNOLOGY"/RE OR "VYSOTSKII V, 1998, V2, P1739, INTERNATIONAL CONF ON THE PHYSICS OF NUCLEAR SCIENCE AND TECHNOLOGY PROCEEDINGS"/RE OR "VYSOTSKII V, 1998, V2, P1739, INTERNATIONAL CONFERENCE ON THE PHYSICS OF NUCLEAR SCIENCE AND TECHNOLOGY"/RE OR "VYSOTSKII V, 1998, V2, P1739, PROC INT CONF PHYS NUCL SCI TECHNOL"/RE OR "VYSOTSKII V, 1998, V2, P1739, PROCEEDINGS OF INTERNATIONAL CONFERENCE ON THE PHYSICS OF NUCLEAR SCIENCE AND TECHNOLOGY"/RE OR "VYSOTSKII V, 1998, V2, P1739, PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE PHYSICS OF NUCLEAR SCIENCE AND TECHNOLOGY"/RE OR "VYSOTSKII V, 1998, V2, P1739, PROCEEDINGS OF THE INTERNATIONAL CONFERENCE PHYSICS OF NUCLEAR SCIENCE AND TECHNOLOGY"/RE OR "VYSOTSKII V, 1998, V47, P1851, RUSS CHEM BULL"/RE OR "VYSOTSKI I V, 1998, V57, P337, PHYS REV C"/RE OR "VYSOTSKII V, 1998, V57, PHYS REV C"/RE OR "VYSOTSKII V, 1998, V58, P337, PHYS REV"/RE OR "VYSOTSKII V, 1998, V58, P337, PHYS REV C"/RE OR "VYSOTSKII V, 1998, V58, P337, PHYSICAL REVIEW C"/RE OR "VYSOTSKII V, 1998, V60, P729, COLLOID J ENGL TRANSL"/RE OR "VYSOTSKII V, 1998, V60, P729, KOLLOID ZH"/RE OR "VYSOTSKII V, 1998, V60, P729, KOLLOIDN ZH"/RE OR "VYSOTSKII V, 1998, VC58, P337, PHYS REV"/RE) AND QUANTUM

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L19 0 SEA ABB=ON PLU=ON ("VYSOTSKII V, 1998, P100, PROCEEDINGS OF THE REGIONAL SCIENTIFIC TECHNICAL CONFERENCE OF DVGMA"/RE OR "VYSOTSKII V, 1998, P137, POVERKHNOST"/RE OR "VYSOTSKII V, 1998, P1905, IZV AKAD NAUK SER KHIM"/RE OR "VYSOTSKII V, 1998, P69, PROC IX CONF LASER OPTICS 98"/RE OR "VYSOTSKII V, 1998, P71, PROC IX CONF LASER OPTICS 98"/RE OR "VYSOTSKII V, 1998, P79, TAMOZHENNAYA POLITIKA ROSSII NA DAL NEM VOSTOKE"/RE OR

CAS/STN fwd cite

Page 2 of 3

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L20 12 SEA ABB=ON PLU=ON L18 AND LIFE#####
L21 7 SEA ABB=ON PLU=ON L18 AND LIVE######
L22 0 SEA ABB=ON PLU=ON L18 AND HALFLI######
L23 8 SEA ABB=ON PLU=ON L18 AND TIME
L24 17 SEA ABB=ON PLU=ON L18 AND DECAY#####
L25 0 SEA ABB=ON PLU=ON L18 AND DURATION
L26 1 SEA ABB=ON PLU=ON L18 AND PROLONG#####
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L28 0 SEA ABB=ON PLU=ON L18 AND ELAPS#####
L29 6 SEA ABB=ON PLU=ON L18 AND ABSOR######
L30 1 SEA ABB=ON PLU=ON L18 AND COLLI#######
L31 0 SEA ABB=ON PLU=ON L18 AND BOMBAR######
L32 27 SEA ABB=ON PLU=ON (L17 OR (L20 OR L21 OR L22 OR L23 OR L24 OR L25 OR L26))
L33 7 SEA ABB=ON PLU=ON (L29 OR L30)
L34 5 SEA ABB=ON PLU=ON L32 AND L33
L35 5 SEA ABB=ON PLU=ON L34 NOT L15
L36 5 SEA ABB=ON PLU=ON L35 AND 1998-2004/PY
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CAS/STN fwd cite

CAS/STN FILE 'LCA' ENTERED AT 12:11:28 ON 25 AUG 2008

L1 231 SEA ABB=ON PLU=ON HALFLIFE# OR HALF(W)(LIFE# OR LIVE#) OR HALFLIVE#

L2 0 SEA ABB=ON PLU=ON (DEEXCIT###### OR DE EXCIT######)(4A)PROBAB ILIT#####

L3 57 SEA ABB=ON PLU=ON DECAY####(4A)(TIME## OR TIMING OR DURATION OR ELAPS#### OR INTERVAL# OR SECONDS OR MICROSEC#### OR MILLISEC##### OR MINUTES OR HOURS OR DAYS OR YEARS)

L4 42 SEA ABB=ON PLU=ON (CHANG#### OR MODIF##### OR ALTER OR ALTERING OR ALTERS OR ALTERED OR SHORTER#### OR LENGTHEN##### OR SHORTEN###### OR INCREAS##### OR DECREAS##### OR PROLONG#### ## OR VARY##### OR VARIES OR VARIED OR VARIAB##### OR DIFFER### ##)(10A)L1

L5 0 SEA ABB=ON PLU=ON (CHANG#### OR MODIF##### OR ALTER OR ALTERING OR ALTERS OR ALTERED OR SHORTER#### OR LENGTHEN##### OR SHORTEN###### OR INCREAS##### OR DECREAS##### OR PROLONG#### ## OR VARY##### OR VARIES OR VARIED OR VARIAB##### OR DIFFER### ##)(10A)L2

L6 7 SEA ABB=ON PLU=ON (CHANG#### OR MODIF##### OR ALTER OR ALTERING OR ALTERS OR ALTERED OR SHORTER#### OR LENGTHEN##### OR SHORTEN###### OR INCREAS##### OR DECREAS##### OR PROLONG#### ## OR VARY##### OR VARIES OR VARIED OR VARIAB##### OR DIFFER### ##)(10A)L3

L7 4 SEA ABB=ON PLU=ON L1(10A)(THEORY OR THEORETIC##### OR KNOWN OR PRESUM##### OR PREDETERMIN##### OR PRE DETERMIN##### OR LITERATURE OR HANDBOOK OR MANUAL OR ESTABLISHED)

L8 0 SEA ABB=ON PLU=ON L2(10A)(THEORY OR THEORETIC##### OR KNOWN OR PRESUM##### OR PREDETERMIN##### OR PRE DETERMIN##### OR LITERATURE OR HANDBOOK OR MANUAL OR ESTABLISHED)

L9 0 SEA ABB=ON PLU=ON L3(10A)(THEORY OR THEORETIC##### OR KNOWN OR PRESUM##### OR PREDETERMIN##### OR PRE DETERMIN##### OR LITERATURE OR HANDBOOK OR MANUAL OR ESTABLISHED)

L10 7 SEA ABB=ON PLU=ON L1(10A)(INITIAL## OR BEFORE OR PREVIOUS## OR PRIOR OR STARTING)

L11 0 SEA ABB=ON PLU=ON L1(10A)(PRE OR PREBOMBARD##### OR PREIRRADI ATION)

L12 0 SEA ABB=ON PLU=ON L1(10A)(FINAL OR LATER OR (FOLLOWING OR AFTER OR POST)(2A)(ABSOR###### OR BOMBARD###### OR PHOTON#### OR GAMMA) OR POSTBOMBARD##### OR POSTIRRADIATION)

L13 0 SEA ABB=ON PLU=ON L2(10A)(INITIAL## OR BEFORE OR PREVIOUS## OR PRIOR OR STARTING)

L14 0 SEA ABB=ON PLU=ON L2(10A)(PRE OR PREBOMBARD##### OR PREIRRADI ATION)

L15 0 SEA ABB=ON PLU=ON L2(10A)(FINAL OR LATER OR (FOLLOWING OR AFTER OR POST)(2A)(ABSOR###### OR BOMBARD###### OR PHOTON#### OR GAMMA) OR POSTBOMBARD##### OR POSTIRRADIATION)

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L18 0 SEA ABB=ON PLU=ON L3(10A)(FINAL OR LATER OR (FOLLOWING OR AFTER OR POST)(2A)(ABSOR###### OR BOMBARD###### OR PHOTON#### OR GAMMA) OR POSTBOMBARD##### OR POSTIRRADIATION)

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L21 4 SEA ABB=ON PLU=ON (ISOMER#### OR RADIOISOMER####) AND L19
L22 10 SEA ABB=ON PLU=ON (NUCLIDE OR RADIONUCLIDE) AND L19
L23 0 SEA ABB=ON PLU=ON (NUCLEIDE OR RADIONUCLEIDE) AND L19
L24 28 SEA ABB=ON PLU=ON (L20 OR L21 OR L22 OR L23)
L25 3 SEA ABB=ON PLU=ON (L4 OR L5 OR L6 OR L7 OR L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15 OR L16 OR L17 OR L18) AND L24

FILE 'HCAPLUS' ENTERED AT 12:19:07 ON 25 AUG 2008
L26 89293 SEA ABB=ON PLU=ON HALFLIFE# OR HALF(W)(LIFE# OR LIVE#) OR HALFLIVE#
L27 176 SEA ABB=ON PLU=ON (DEEXCIT###### OR DE EXCIT######)(4A)PROBABILIT#####
L28 29309 SEA ABB=ON PLU=ON DECAY####(4A)(TIME## OR TIMING OR DURATION OR ELAPS#### OR INTERVAL# OR SECONDS OR MICROSEC#### OR MILLISEC##### OR MINUTES OR HOURS OR DAYS OR YEARS)
L29 17846 SEA ABB=ON PLU=ON (CHANG#### OR MODIF##### OR ALTER OR ALTERING OR ALTERS OR ALTERED OR SHORTER#### OR LENGTHEN##### OR SHORTEN###### OR INCREAS##### OR DECREAS##### OR PROLONG##### OR VARY##### OR VARIES OR VARIED OR VARIAB##### OR DIFFER#####)(10A)L1
L30 20 SEA ABB=ON PLU=ON (CHANG#### OR MODIF##### OR ALTER OR ALTERING OR ALTERS OR ALTERED OR SHORTER#### OR LENGTHEN##### OR SHORTEN###### OR INCREAS##### OR DECREAS##### OR PROLONG##### OR VARY##### OR VARIES OR VARIED OR VARIAB##### OR DIFFER#####)(10A)L2
L31 5157 SEA ABB=ON PLU=ON (CHANG#### OR MODIF##### OR ALTER OR ALTERING OR ALTERS OR ALTERED OR SHORTER#### OR LENGTHEN##### OR SHORTEN###### OR INCREAS##### OR DECREAS##### OR PROLONG##### OR VARY##### OR VARIES OR VARIED OR VARIAB##### OR DIFFER#####)(10A)L3
L32 1076 SEA ABB=ON PLU=ON L1(10A)(THEORY OR THEORETIC##### OR KNOWN OR PRESUM##### OR PREDETERMIN##### OR PRE DETERMIN##### OR LITERATURE OR HANDBOOK OR MANUAL OR ESTABLISHED)
L33 3 SEA ABB=ON PLU=ON L2(10A)(THEORY OR THEORETIC##### OR KNOWN OR PRESUM##### OR PREDETERMIN##### OR PRE DETERMIN##### OR LITERATURE OR HANDBOOK OR MANUAL OR ESTABLISHED)
L34 507 SEA ABB=ON PLU=ON L3(10A)(THEORY OR THEORETIC##### OR KNOWN OR PRESUM##### OR PREDETERMIN##### OR PRE DETERMIN##### OR LITERATURE OR HANDBOOK OR MANUAL OR ESTABLISHED)
L35 2112 SEA ABB=ON PLU=ON L1(10A)(INITIAL## OR BEFORE OR PREVIOUS## OR PRIOR OR STARTING)
L36 100 SEA ABB=ON PLU=ON L1(10A)(PRE OR PREBOMBARD##### OR PREIRRADIATION)
L37 359 SEA ABB=ON PLU=ON L1(10A)(FINAL OR LATER OR (FOLLOWING OR AFTER OR POST)(2A)(ABSOR###### OR BOMBARD###### OR PHOTON#### OR GAMMA) OR POSTBOMBARD##### OR POSTIRRADIATION)
L38 2 SEA ABB=ON PLU=ON L2(10A)(INITIAL## OR BEFORE OR PREVIOUS## OR PRIOR OR STARTING)
L39 0 SEA ABB=ON PLU=ON L2(10A)(PRE OR PREBOMBARD##### OR PREIRRADIATION)
L40 1 SEA ABB=ON PLU=ON L2(10A)(FINAL OR LATER OR (FOLLOWING OR AFTER OR POST)(2A)(ABSOR###### OR BOMBARD###### OR PHOTON#### OR GAMMA) OR POSTBOMBARD##### OR POSTIRRADIATION)
L41 901 SEA ABB=ON PLU=ON L3(10A)(INITIAL## OR BEFORE OR PREVIOUS##

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                OR PRIOR OR STARTING)
L42          28 SEA ABB=ON  PLU=ON  L3(10A)(PRE OR PREBOMBARD##### OR PREIRRADI
                ATION)
L43         162 SEA ABB=ON  PLU=ON  L3(10A)(FINAL OR LATER OR (FOLLOWING OR
                AFTER OR POST)(2A)(ABSOR###### OR BOMBARD###### OR PHOTON####
                OR GAMMA) OR POSTBOMBARD##### OR POSTIRRADIATION)
L44      118102 SEA ABB=ON  PLU=ON  (L1 OR L2 OR L3)
L45       10426 SEA ABB=ON  PLU=ON  (ISOTOPE OR RADIOISOTOPE) AND L19
L46        3542 SEA ABB=ON  PLU=ON  (ISOMER#### OR RADIOISOMER####) AND L19
L47        4004 SEA ABB=ON  PLU=ON  (NUCLIDE OR RADIONUCLIDE) AND L19
L48           5 SEA ABB=ON  PLU=ON  (NUCLEIDE OR RADIONUCLEIDE) AND L19
L49       15387 SEA ABB=ON  PLU=ON  (L20 OR L21 OR L22 OR L23)
L50        1958 SEA ABB=ON  PLU=ON  (L4 OR L5 OR L6 OR L7 OR L8 OR L9 OR L10
                OR L11 OR L12 OR L13 OR L14 OR L15 OR L16 OR L17 OR L18) AND
                L24

     FILE 'STNGUIDE' ENTERED AT 12:20:58 ON 25 AUG 2008

     FILE 'HCAPLUS' ENTERED AT 12:23:03 ON 25 AUG 2008
L51         330 SEA ABB=ON  PLU=ON  L50 AND (ABSOR######  OR PHOTOABSOR#######
                OR BOMBARD######)
L52         508 SEA ABB=ON  PLU=ON  L50 AND GAMMA
L53           0 SEA ABB=ON  PLU=ON  L50 AND BREMS########
L54          18 SEA ABB=ON  PLU=ON  L50 AND CASCAD########
L55          33 SEA ABB=ON  PLU=ON  L50 AND PHOTON#####
L56         522 SEA ABB=ON  PLU=ON  (L52 OR L53 OR L54 OR L55)
L57         132 SEA ABB=ON  PLU=ON  L51 AND L56
L58           0 SEA ABB=ON  PLU=ON  L57 AND ENTANGL######
L59           0 SEA ABB=ON  PLU=ON  L57 AND QUANT#####(3A)COUPL#####
L60         100 SEA ABB=ON  PLU=ON  (L50 OR L51 OR L52 OR L53 OR L54 OR L55 OR
                L56 OR L57) AND MECHANISM
L61          27 SEA ABB=ON  PLU=ON  (L51 OR L52 OR L53 OR L54 OR L55 OR L56 OR
                L57) AND MECHANISM
L62           7 SEA ABB=ON  PLU=ON  CHANG#####(4A)HALFLI#####
L63         629 SEA ABB=ON  PLU=ON  CHANG#####(4A)HALF LIFE
L64          80 SEA ABB=ON  PLU=ON  CHANG#####(4A)HALF LIVE
L65         167 SEA ABB=ON  PLU=ON  INITIAL##(4A)HALF LIVE
L66           2 SEA ABB=ON  PLU=ON  INITIAL##(4A)HALFLI?
L67         776 SEA ABB=ON  PLU=ON  INITIAL##(4A)HALF LIFE
L68          71 SEA ABB=ON  PLU=ON  (L50 OR L51 OR L52 OR L53 OR L54 OR L55 OR
                L56 OR L57) AND (L62 OR L63 OR L64 OR L65 OR L66 OR L67)
L69           8 SEA ABB=ON  PLU=ON  L60 AND L68
L70          33 SEA ABB=ON  PLU=ON  L61 OR L69

     FILE 'STNGUIDE' ENTERED AT 12:26:48 ON 25 AUG 2008

     FILE 'LCA' ENTERED AT 12:32:21 ON 25 AUG 2008
L71          49 SEA ABB=ON  PLU=ON  (NUCLEAR OR NUCLIDE OR NUCLEIDE OR
                RADIONUC####### OR NUCLEUS OR NUCLEI OR ELEMENT OR ELEMENTAL)(3
                A)(?ISOMER? OR ?ISOTOPE?)

     FILE 'ZCAPLUS' ENTERED AT 12:32:33 ON 25 AUG 2008
                E GAMMA RAYS/CT

     FILE 'LCA' ENTERED AT 12:33:06 ON 25 AUG 2008
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L72          26 SEA ABB=ON  PLU=ON  GAMMA RAY(L)ABSOR#######
L73          15 SEA ABB=ON  PLU=ON  GAMMA RAYS(L)ABSOR######
L74         222 SEA ABB=ON  PLU=ON  (GAMMA RAY OR PHOTON### OR RADIATION OR
                ?PARTICLE? OR ENERGY OR EV OR E V OR KEV OR MEV)(4A)ABSOR#######
L75          26 SEA ABB=ON  PLU=ON  GAMMA RAY(L)ABSOR######

     FILE 'HCAPLUS' ENTERED AT 12:36:16 ON 25 AUG 2008
L76        1374 SEA ABB=ON  PLU=ON  (L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR
                L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38) AND L71
L77        1055 SEA ABB=ON  PLU=ON  (L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR
                L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38) AND (L73 OR L74
                OR L75)
L78        1055 SEA ABB=ON  PLU=ON  (L39 OR L40 OR L41 OR L42 OR L43 OR L44 OR
                L45 OR L46 OR L47 OR L48 OR L49 OR L50) AND (L73 OR L74 OR
                L75)
L79        1374 SEA ABB=ON  PLU=ON  (L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR
                L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38) AND L71
L80        1374 SEA ABB=ON  PLU=ON  (L39 OR L40 OR L41 OR L42 OR L43 OR L44 OR
                L45 OR L46 OR L47 OR L48 OR L49 OR L50) AND L71
L81          89 SEA ABB=ON  PLU=ON  (L51 OR L52 OR L53 OR L54 OR L55 OR L56 OR
                L57 OR L58 OR L59 OR L60 OR L61 OR L62 OR L63 OR L64 OR L65 OR
                L66 OR L67 OR L68 OR L69 OR L70) AND L71
L82          30 SEA ABB=ON  PLU=ON  (L51 OR L52 OR L53 OR L54 OR L55 OR L56 OR
                L57 OR L58 OR L59 OR L60 OR L61 OR L62 OR L63 OR L64 OR L65 OR
                L66 OR L67 OR L68 OR L69 OR L70) AND (L73 OR L74 OR L75)

     FILE 'LCA' ENTERED AT 12:38:29 ON 25 AUG 2008

     FILE 'HCAPLUS' ENTERED AT 12:40:03 ON 25 AUG 2008
L83        3423 SEA ABB=ON  PLU=ON  L27 OR L30 OR (L33 OR L34) OR (L36 OR L37
                OR L38 OR L39 OR L40) OR (L42 OR L43) OR L48 OR (L51 OR L52 OR
                L53 OR L54 OR L55 OR L56 OR L57 OR L58 OR L59 OR L60 OR L61 OR
                L62 OR L63 OR L64 OR L65 OR L66 OR L67 OR L68 OR L69)
L84        2413 SEA ABB=ON  PLU=ON  (L76 OR L77 OR L78 OR L79 OR L80 OR L81 OR
                L82)
L85         130 SEA ABB=ON  PLU=ON  L83 AND L84
L86          14 SEA ABB=ON  PLU=ON  L85 AND L72
L87          11 SEA ABB=ON  PLU=ON  L85 AND L73
L88          34 SEA ABB=ON  PLU=ON  L85 AND L74
L89           3 SEA ABB=ON  PLU=ON  (L62 OR L63 OR L64 OR L65 OR L66 OR L67)
                AND (L86 OR L87 OR L88)
L90           3 SEA ABB=ON  PLU=ON  L89 NOT L70
                D ALL TOT

     FILE 'STNGUIDE' ENTERED AT 12:41:53 ON 25 AUG 2008

     FILE 'HCAPLUS' ENTERED AT 12:43:25 ON 25 AUG 2008
L91        1522 SEA ABB=ON  PLU=ON  L71 AND (L72 OR L73 OR L74 OR L75 OR L76
                OR L77 OR L78 OR L79 OR L80 OR L81 OR L82 OR L83 OR L84 OR L85
                OR L86 OR L87 OR L88)

     FILE 'STNGUIDE' ENTERED AT 12:43:36 ON 25 AUG 2008

     FILE 'HCAPLUS' ENTERED AT 12:44:26 ON 25 AUG 2008
L92        1519 SEA ABB=ON  PLU=ON  L91 NOT (L90 OR L70)
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L93          164 SEA ABB=ON  PLU=ON  (L73 OR L74 OR L75) AND L92
L94           79 SEA ABB=ON  PLU=ON  L92 AND CHANG######
L95           29 SEA ABB=ON  PLU=ON  L92 AND INITIAL##
L96          114 SEA ABB=ON  PLU=ON  L92 AND THEORETICAL##
L97          344 SEA ABB=ON  PLU=ON  (L93 OR L94 OR L95 OR L96)
L98            5 SEA ABB=ON  PLU=ON  L97 AND ?ISOMER?(6A)CHANG######
                 D ALL TOT

      FILE 'STNGUIDE' ENTERED AT 12:46:19 ON 25 AUG 2008

      FILE 'HCAPLUS' ENTERED AT 12:48:14 ON 25 AUG 2008
L99           28 SEA ABB=ON  PLU=ON  ?ISOMER?(5A)?ABSORB?(5A)(GAMMA OR PHOTON###
                 # OR ENERGY OR RADIATION)
L100           3 SEA ABB=ON  PLU=ON  (L92 OR L93 OR L94 OR L95 OR L96 OR L97)
                 AND L99
L101           3 SEA ABB=ON  PLU=ON  L100 NOT L98
                 D ALL TOT

      FILE 'STNGUIDE' ENTERED AT 12:48:53 ON 25 AUG 2008

      FILE 'HCAPLUS' ENTERED AT 12:52:09 ON 25 AUG 2008
L102      118102 SEA ABB=ON  PLU=ON  (L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR
                 L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38 OR L39 OR L40 OR
                 L41 OR L42 OR L43 OR L44 OR L45 OR L46 OR L47 OR L48 OR L49 OR
                 L50)
L103        2180 SEA ABB=ON  PLU=ON  (L51 OR L52 OR L53 OR L54 OR L55 OR L56 OR
                 L57 OR L58 OR L59 OR L60 OR L61 OR L62 OR L63 OR L64 OR L65 OR
                 L66 OR L67 OR L68 OR L69 OR L70)
L104      108143 SEA ABB=ON  PLU=ON  (L72 OR L73 OR L74 OR L75 OR L76 OR L77 OR
                 L78 OR L79 OR L80 OR L81 OR L82 OR L83 OR L84 OR L85 OR L86 OR
                 L87 OR L88 OR L89 OR L90 OR L91 OR L92 OR L93 OR L94 OR L95 OR
                 L96 OR L97 OR L98 OR L99)
L105          44 SEA ABB=ON  PLU=ON  L90 OR L70 OR L98 OR L101

      FILE 'STNGUIDE' ENTERED AT 12:52:12 ON 25 AUG 2008

      FILE 'HCAPLUS' ENTERED AT 12:54:41 ON 25 AUG 2008
L106      220495 SEA ABB=ON  PLU=ON  (L102 OR L103 OR L104) NOT L105
L107        3699 SEA ABB=ON  PLU=ON  L106 AND NUCLEAR ENERGY LEVEL
L108       20408 SEA ABB=ON  PLU=ON  L106 AND GAMMA RAY
L109         724 SEA ABB=ON  PLU=ON  L106 AND (DEEXCIT? OR DE EXCIT########)
L110        2328 SEA ABB=ON  PLU=ON  L106 AND (METASTAB? OR META STABLE OR META
                 STABILI#######)

      FILE 'STNGUIDE' ENTERED AT 12:54:51 ON 25 AUG 2008

      FILE 'HCAPLUS' ENTERED AT 12:56:10 ON 25 AUG 2008
L111      116402 SEA ABB=ON  PLU=ON  L106 AND ABSOR#######
L112      110896 SEA ABB=ON  PLU=ON  L106 AND (HALFLI###### OR HALF LIFE OR HALF
                 LIVE OR DECAY###(2A)(TIME OR PROLONG##### OR DURATION OR
                 INTERVAL))

      FILE 'STNGUIDE' ENTERED AT 12:56:26 ON 25 AUG 2008

      FILE 'HCAPLUS' ENTERED AT 12:58:41 ON 25 AUG 2008
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L113 614 SEA ABB=ON PLU=ON (L107 OR L108 OR L109 OR L110 OR L111 OR L112) AND (RADIOISOMER? OR RADIO ISOMER###### OR ISOMER#####(3A)(ELEMENT OR ELEMENTAL OR NUCLEAR OR NUCLEI OR NUCLEUS OR RADIONU? OR NUCLIDE OR NUCLEIDE))

FILE 'STNGUIDE' ENTERED AT 12:58:47 ON 25 AUG 2008

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  FILE 'HCAPLUS' ENTERED AT 13:00:52 ON 25 AUG 2008
L114           1 SEA ABB=ON  PLU=ON  L113 AND QUANT####(3A)(ENTANGL##### OR
                 COUPL#####)
L115           1 SEA ABB=ON  PLU=ON  L113 AND ENTANGL######(3A)(ENERGY OR
                 PHOTON#### OR GAMMA)
L116           1 SEA ABB=ON  PLU=ON  L113 AND ENTANGL#######
L117          20 SEA ABB=ON  PLU=ON  L113 AND DEEXCIT#######
L118           3 SEA ABB=ON  PLU=ON  L113 AND DE EXCIT#######
L119         396 SEA ABB=ON  PLU=ON  L113 AND (ABSOR####### OR GAMMA OR X RAY
                 OR BREMS########### OR CASCAD######)
L120         165 SEA ABB=ON  PLU=ON  L113 AND (ABSOR####### OR GAMMA OR X RAY
                 OR BREMS########### OR CASCAD######)(4A)?ISOMER?
L121           1 SEA ABB=ON  PLU=ON  L113 AND (ABSOR####### OR GAMMA OR X RAY
                 OR BREMS########### OR CASCAD######)(4A)?TANGL?
L122           4 SEA ABB=ON  PLU=ON  L113 AND (ABSOR####### OR GAMMA OR X RAY
                 OR BREMS########### OR CASCAD######)(4A)COUPL#####
L123          27 SEA ABB=ON  PLU=ON  (L114 OR L115 OR L116 OR L117 OR L118) OR
                 (L121 OR L122)
L124          20 SEA ABB=ON  PLU=ON  (L119 OR L120) AND CHANG#######
L125           2 SEA ABB=ON  PLU=ON  (L119 OR L120) AND SMOOTH#######
L126          19 SEA ABB=ON  PLU=ON  (L119 OR L120) AND INCREAS#######
L127           7 SEA ABB=ON  PLU=ON  (L119 OR L120) AND DECREAS######
L128           3 SEA ABB=ON  PLU=ON  (L119 OR L120) AND VARY#####
L129           1 SEA ABB=ON  PLU=ON  (L119 OR L120) AND VARIES
L130           0 SEA ABB=ON  PLU=ON  (L119 OR L120) AND VARIAB########
L131          30 SEA ABB=ON  PLU=ON  (L119 OR L120) AND FUNCTION
L132           9 SEA ABB=ON  PLU=ON  (L119 OR L120) AND MECHANISM
L133           4 SEA ABB=ON  PLU=ON  L124 AND L126
L134           3 SEA ABB=ON  PLU=ON  L124 AND L117
L135           2 SEA ABB=ON  PLU=ON  L124 AND L131
L136           0 SEA ABB=ON  PLU=ON  L117 AND L126
L137           2 SEA ABB=ON  PLU=ON  L117 AND L131
L138           1 SEA ABB=ON  PLU=ON  L126 AND L131
L139          50 SEA ABB=ON  PLU=ON  (L114 OR L115 OR L116) OR L118 OR (L121 OR
                 L122 OR L123) OR L125 OR (L127 OR L128 OR L129) OR (L132 OR
                 L133 OR L134 OR L135 OR L136 OR L137 OR L138)
L140          50 SEA ABB=ON  PLU=ON  L139 NOT L105
L141          10 SEA ABB=ON  PLU=ON  L140 AND ABSOR#######
L142          45 SEA ABB=ON  PLU=ON  L140 AND GAMMA
L143          10 SEA ABB=ON  PLU=ON  L140 AND CHANG########
L144          47 SEA ABB=ON  PLU=ON  L141 OR L142 OR L143
L145          50 SEA ABB=ON  PLU=ON  L140 OR L144
                 D BIB AB IT 1-50

    FILE 'STNGUIDE' ENTERED AT 13:08:16 ON 25 AUG 2008

    FILE 'LCA' ENTERED AT 13:10:58 ON 25 AUG 2008
L146           0 SEA ABB=ON  PLU=ON  NUCLEAR TRANSITION
L147           0 SEA ABB=ON  PLU=ON  NUCLEAR LEVEL EXCITATION

    FILE 'HCAPLUS' ENTERED AT 13:12:01 ON 25 AUG 2008
L148          94 SEA ABB=ON  PLU=ON  L105 OR L145
L149         398 SEA ABB=ON  PLU=ON  (L114 OR L115 OR L116 OR L117 OR L118 OR
                 L119 OR L120 OR L121 OR L122 OR L123 OR L124 OR L125 OR L126
                 OR L127 OR L128 OR L129 OR L130 OR L131 OR L132 OR L133 OR
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                L134 OR L135 OR L136 OR L137 OR L138 OR L139 OR L140 OR L141)
L150         348 SEA ABB=ON  PLU=ON  L149 NOT L148
L151          35 SEA ABB=ON  PLU=ON  L150 AND L146
L152           6 SEA ABB=ON  PLU=ON  L150 AND L147
L153         230 SEA ABB=ON  PLU=ON  L150 AND NUCLEAR ENERGY LEVEL
L154           0 SEA ABB=ON  PLU=ON  PROBAB#######(7A)(EXCIT####### OR DEEXCIT##
                ######) AND (L151 OR L152 OR L153)
L155           0 SEA ABB=ON  PLU=ON  DEEXCIT######## AND (L151 OR L152 OR L153)

L156           0 SEA ABB=ON  PLU=ON  DE EXCIT######## AND (L151 OR L152 OR
                L153)
L157           9 SEA ABB=ON  PLU=ON  ABSOR#######(4A)(PHOTON#### OR GAMMA) AND
                (L151 OR L152 OR L153)
L158           5 SEA ABB=ON  PLU=ON  HALFLI? AND (L151 OR L152 OR L153)
L159         217 SEA ABB=ON  PLU=ON  HALF LIFE AND (L151 OR L152 OR L153)
L160         100 SEA ABB=ON  PLU=ON  HALF LIVE AND (L151 OR L152 OR L153)
L161         145 SEA ABB=ON  PLU=ON  DECAY###### AND (L151 OR L152 OR L153)
L162         159 SEA ABB=ON  PLU=ON  (L159 OR L160 OR L161) AND (HALF OR
                DECAY########)(4A)?ISOMER?
L163           0 SEA ABB=ON  PLU=ON  (L159 OR L160 OR L161) AND (HALF OR
                DECAY########)(4A)?ISOMER?(7A)CHANG######
L164          14 SEA ABB=ON  PLU=ON  (HALF OR DECAY########)(4A)?ISOMER?(7A)CHANG
                ######
L165          34 SEA ABB=ON  PLU=ON  L152 OR (L157 OR L158) OR L164
L166          31 SEA ABB=ON  PLU=ON  L151 AND (L159 OR L160 OR L161)
L167          62 SEA ABB=ON  PLU=ON  L165 OR L166
L168          62 SEA ABB=ON  PLU=ON  L167 NOT L148
L169           0 SEA ABB=ON  PLU=ON  L168 AND ENTANGL######
L170           8 SEA ABB=ON  PLU=ON  L168 AND QUANT########
L171           4 SEA ABB=ON  PLU=ON  L168 AND COUPL######
L172          12 SEA ABB=ON  PLU=ON  L170 OR L171
                D ALL TOT

     FILE 'STNGUIDE' ENTERED AT 13:18:10 ON 25 AUG 2008

     FILE 'HCAPLUS' ENTERED AT 13:20:37 ON 25 AUG 2008
L173         350 SEA ABB=ON  PLU=ON  (L150 OR L151 OR L152 OR L153 OR L154 OR
                L155 OR L156 OR L157 OR L158 OR L159 OR L160 OR L161 OR L162
                OR L163 OR L164 OR L165 OR L166 OR L167 OR L168) NOT (L148 OR
                L172)
L174           0 SEA ABB=ON  PLU=ON  QUANT#####(3A)ENTANGL###### AND L173
L175           1 SEA ABB=ON  PLU=ON  QUANT#####(7A)ENTANGL####(7A)?ISOMER? NOT
                (L148 OR L172)
                D ALL
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...We conjecture that this Hamiltonian **absorbs** the leading order correction to the non-interacting...reservoirs of massless free quantum fields (**photons**, phonons or other massless excitations...evolution creates the system-reservoir **entanglement**. 4. The corresponding expressions for...
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...Demonstration of **Quantum** Cryptography using Polarized **Photons** in Optical...Nonlocality Proof of **Quantum** Teleportation and **Entanglement** Swapping...radiation from **isomeric** nuclei...d'intrication de **photons** est utilisoe...des rayons **gamma** mis par...
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Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	721	wang and greenwald	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:16
L2	136	L1 and (kwiat or aji or moore or julsgaard or gent or desbrandes or collins or vangent or karamian or Vysotskii or Olariu or Rivlin or Zadernovsky)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:19
L3	6	L1 and (absor$8 or captur$7) near4 (photon$5 or gamma)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:19
L4	0	L2 and L3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:20
L5	22166	(absor$8 or captur$7) near4 (photon$5 or gamma)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:21
L6	684	(qe or entangl$7 or (quant$4 near3 coupl$6)) near9 (photon$5 or gamma)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:22
L7	27410	(absor$8 or captur$7) near9 (photon$5 or gamma)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:22
L8	238	L6 and L7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:22
L9	20	L8 and (wang or greenwald)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:22

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L10	46	L8 and (kwiat or aji or moore or julsgaard or gent or desbrandes or collins or vangent or karamian or Vysotskii or Olariu or Rivlin or Zadernovsky)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:22
L11	61	L9 or L10	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/08/26 10:23
L12	84146	Halfli$6 or (half adj (life$1 or live$1)) or halflive$1	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:24
L13	25	(deexcit$7 or (de adj1 excit$7)) near6 probabilit$7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:25
L14	181816	lifetime or (life adj time)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:25
L15	22996	(control$5 or time or duration or life or elaps$6 or elaps$7 or interval) near2 decay$7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:26
L16	3	L11 and L12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:26
L17	1	L11 and L13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:26
L18	25	L11 and L14	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:27
L19	4	L11 and L15	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:27

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L20	54	L13 or L16 or L17 or L18 or L19	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:27
L21	47	L20 and absor$8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:27
L22	47	L20 and absor$12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:28
L23	17	L20 and captur$8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:28
L24	11	L20 and qe	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:28
L25	27	L20 and entangl$8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:28
L26	17	L22 and L23	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:28
L27	27	L24 or L25	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:29
L28	12	L26 and L27	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:29
L29	0	L28 and isomer$8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:29

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L30	4	L20 and isomer$8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:29
L31	0	L20 and radioisomer$8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:29
L32	514	(L1 or L2 or L3 or L5 or L6 or L7 or L12 or L13 or L14 or L15) and (isomer$8 near7 (gamma or photon$4 or absor$12 or captur$9))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:31
L33	148	(L1 or L2 or L3 or L5 or L6 or L7 or L12 or L13 or L14 or L15) and (isomer$8 near7 gamma)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:32
L34	330	(L1 or L2 or L3 or L5 or L6 or L7 or L12 or L13 or L14 or L15) and (isomer$8 near7 absor$12)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:32
L35	33	(L1 or L2 or L3 or L5 or L6 or L7 or L12 or L13 or L14 or L15) and (isomer$8 near7 captur$7)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:32
L36	80	(L1 or L2 or L3 or L5 or L6 or L7 or L12 or L13 or L14 or L15) and (isomer$8 near7 photon)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:32
L37	82	(L1 or L2 or L3 or L5 or L6 or L7 or L12 or L13 or L14 or L15) and (isomer$8 near7 photon$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:33
L38	6	L33 and L34	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:33
L39	6	L33 and L35	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:33

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L40	5	L34 and L35	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:33
L41	2	L33 and L37	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:34
L42	56	L34 and L37	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:34
L43	9	L35 and L37	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:34
L44	6	L42 and x adj ray	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:34
L45	25	L38 or L39 or L40 or L41 or L43 or L44	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:35
L46	25	L45 not L30	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:35
L47	7	L46 and isomer$8.ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:35
L48	9	L46 and isomer$8.ab.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:35
L49	5	L46 and isomer$8.clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:35

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L50	9	L47 or L48 or L49	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:36
L51	0	L46 and (element or elemental or inorganic or anorganic or metal$6 or tin or cesium or caesium or cs or ce or sn or cerium or nb or niobium or te or tellurium or cd or cadmium or xe or xenon or hf or hafnium or ir or iridium or pt or platinum) near8 isoomer$7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:39
L52	0	L46 and (93nb$6 or 111cd$6 or 117sn$6 or 19sn$6 or 125te$6 or 129xe$6 or 131xe$6 or 178hf$6 or 179hf$6 or 193ir$6 or 195pt$6 or 135ce$6 or 135cs$6) near8 isoomer$7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:42
L53	0	(93nb$6 or 111cd$6 or 117sn$6 or 19sn$6 or 125te$6 or 129xe$6 or 131xe$6 or 178hf$6 or 179hf$6 or 193ir$6 or 195pt$6 or 135ce$6 or 135cs$6) near8 isoomer$7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:42
L54	258	(93nb$6 or 111cd$6 or 117sn$6 or 19sn$6 or 125te$6 or 129xe$6 or 131xe$6 or 178hf$6 or 179hf$6 or 193ir$6 or 195pt$6 or 135ce$6 or 135cs$6)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:42
L55	0	(element or elemental or inorganic or anorganic or metal$6 or tin or cesium or caesium or cs or ce or sn or cerium or nb or niobium or te or tellurium or cd or cadmium or xe or xenon or hf or hafnium or ir or iridium or pt or platinum) near8 isoomer$7	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:42
L56	16	L54 and isomer$12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/08/26 10:43

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